Motors in the Lead

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Albion Leyland Scammell

Our Customers never write "WISH YOU WERE HERE"

(Above) A Scammell 4 x 4 MOUNTAINEER Dump Truck with 8/10 cu. yards capacity and a tipping angle of 72° operating in S. W. Africa.

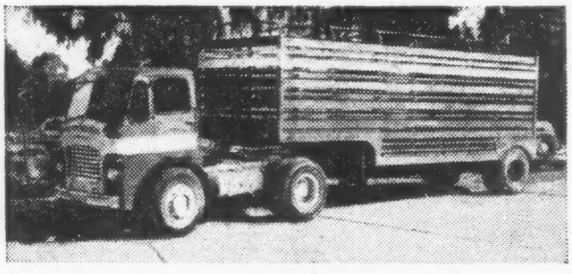
(Right) The rear-engined Leyland ATLANTEAN is the biggest advance of all time in bus design. Low-built and normal height bodies available, seating 73 or 78 passengers.

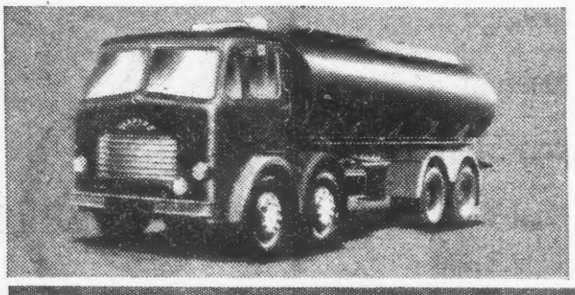
(Below) Operating in Johannesburg, this Leyland BEAVER articulated outfit is employed in transporting cattle over long distances.

(Bottom) This 8-wheeled Albion CALEDONIAN with hub reduction rear axle is fitted with a 4,000 gal. tank. G.V.W. is 24 tons with payload of 16½ tons.

Why should they?

Although our vehicles are admittedly the most troublefree made, yet we like to keep on our customers' doorsteps . . . just in case. They don't have to worry as they run their Leylands in Lagos, Albions in Allahabad or Scammells in Scutari, because, wherever they operate, they know we are nearby to keep things moving—and earning!





Let us look at the set-up of the Group Service organisation

Home users have depots in 50 towns in Great Britain to give on-the-spot first aid. Overseas customers have call on branches in 70 countries for service, spares and replacement units. Our resident and mobile engineers will also seek them out to advise and help. In special cases, we fly out a team of experts from this country.

Like the service, the Group range of vehicles is the widest in the world. You can buy trucks from 3 to 150 tons, with models of every practicable capacity in between. If it's buses you want, we make single and double deckers, seating from 26 to 78 people.

Well, that's our story . . . BUT . . . though we've built up this widespread cover for customers, we ease things for ourselves by building the most reliable vehicles on the roads!

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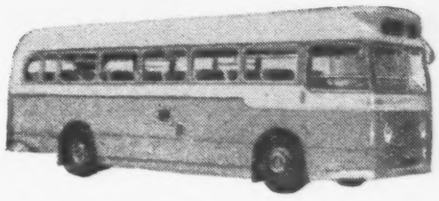
All True Economists

choose M.C.W. bodywork for Passenger Service Vehicles.

These omnibuses were exhibited at the recent Commercial Motor Show, Earls Court.

Normal height double deck omnibus body on Daimler chassis for West Bromwich Transport Department.

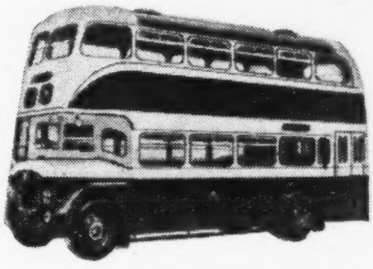
Olympian semi-coach with Leyland running units for Western Welsh Omnibus Co. Ltd.



Normal height Leyland - M.C.W. Atlantean for Wallasey Corporation Motor Buses.

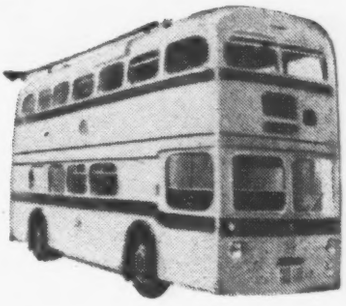
Bodywork by M.C.W.

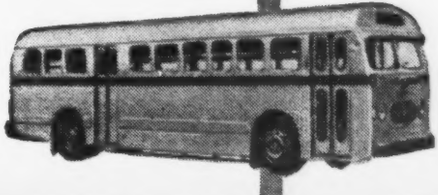
Chassis by Leyland Motors.



Double deck omnibus body on A.E.C. Regent Chassis for Rochdale Corporation Transport Department.

Rear entrance, front exit double deck trolleybus body on Sunbeam chassis for Bournemouth Corporation Transport.





Series 2 Olympic with Leyland running units for South America.

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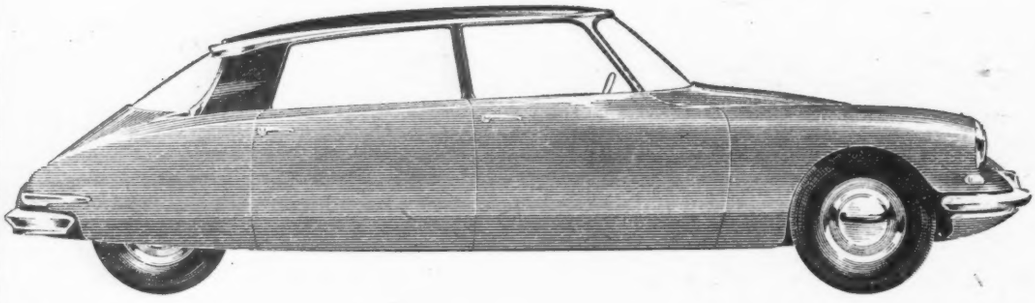
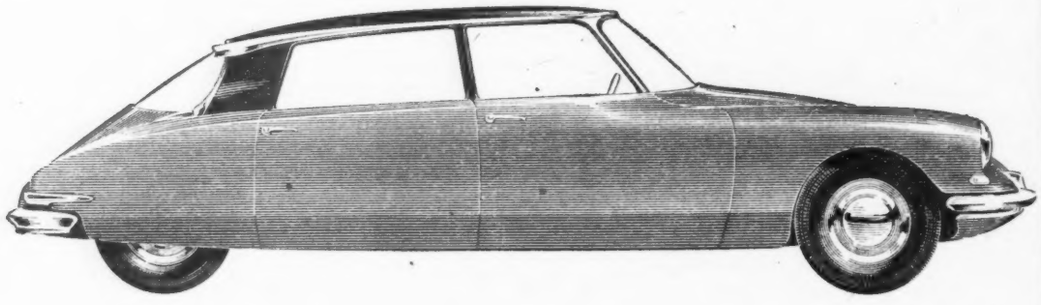
AP189

One new and brilliant



Citroën after another...and



each one 10 years ahead of its time

What car comes near the new and brilliant Citroen? Answer: only another new and brilliant Citroen. And here it is. The superb I.D. 19 has the same amazing hydro-pneumatic suspension, the same tenacious road-holding, the same ease of handling and cornering, the same braking efficiency as the senior Citroen. All this, in fact:

- Hydro-pneumatic suspension—the most advanced in the world—keeps car at same height and on even keel, giving unbelievably smooth riding whatever the load, camber or surface.
- Powered front-wheel disc brakes (standard brakes for rear wheels) for instant halting always.
- Single-spoke steering wheel and new-angle steering column minimise danger to wrists and chest, make the Citroen safest to drive.
- Front wheel drive plus low centre of gravity give maximum road-holding . . . facilitate high-speed cornering.
- Seating for 5-6—in comfort. Oversize boot—17 cu. ft.
- Best all-round visibility of any production saloon.
- *Petrol consumption 38 m.p.g. at steady 50 m.p.h.* ("Autocar" 29/8/58). Genuine top speed 88 m.p.h.

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What's Good for British Motors . . .

FEW industries have had more gratuitous advice from outside critics since the war than the motor industry ; have taken less of it ; or have achieved, all things considered, much more success from following their own judgment. Britain's car manufacturers were adjured to switch over to entirely different kinds of car: first, a standard large-sized model for the export markets where it was said their own small to medium ranges would not sell ; second, some kind of " people's car " to tap the new market of our own masses ; more recently, motorised bubbles to float their way through growing traffic congestion. Soaring curves have been projected to show them how expansive a market they could reach if only they did these new things. They did not—preferring to achieve much of the rationalisation and volume production their amateur advisers had in mind by interchangeability between models in their not radically altered range. This evolving range has been accepted in export markets. It is attracting the British working man into motoring. British car sales, over the years, have risen not much less than the most optimistic of those postwar projections.

So much for the lay critics: the experience is not likely to silence them for ever, nor should it, but it may make their next wave of new magic formulae rather more tentative. The industry is more concerned, as since the war it has always had to be more practically concerned, with a more puissant group of outside observers—in Whitehall. It has not, since perhaps the earliest postwar years, had much direct criticism from there, though an inordinate amount of exhortation. Of late, it has had much more unctuous praise, in that kind of speech in which a politician, from a brief prepared by his hosts, tells them just what they have been doing and hopes they will go on doing rather more of it. But the motor industry has also been subjected, by Conservative governments as well as Socialists, to abrupt and powerful pressures and checks upon its volume of home sales, through changes in purchase tax and hire purchase terms ; and these, which it argues vehemently have not increased but impaired its propensity to export, seem likely to be its lot until Whitehall learns new ways to control a full employment economy at the margins.

IN Whitehall's attitude to the motor industry, there are elements of puritan philosophy, and delayed adjustment to social change, mingled with the economic manager's empiricism. The economic arguments vary from crudity to sophistication. Gone are the days when this industry's quota of steel depended upon the percentage of its production it managed to export ; nevertheless, some vestiges of that planning remain in civil servants' explanations of how checks to home sales should direct the industry's selling efforts abroad. Motors, it is pointed out, become sharply more import-intensive once production passes a given level: beyond it, every marginal extra car sold on the home market can at times cost up to half a marginal ton of expensive dollar steel. Booming car production can be achieved rapidly, because the motor industry is not nearly as heavily capitalised an industry as it likes to think it is ; but the supporting investment that it demands from other industries which are genuinely capital-intensive, such as steel, can of necessity only be achieved slowly and in very large lumps such as a fourth strip mill. So car sales, the spearhead of durable consumption, are always liable to run ahead of what the rest of the economy can manage in periods of inflation ; and it is this top layer of spending that will most logically be restrained when disinflation becomes essential. Besides, the expedient planner might add, cars and other durable consumer goods happen to be subject to some of the most convenient and quickest of controls: purchase tax, hire purchase restrictions, and in extreme cases fuel tax do all achieve results rapidly. The economic manager's convenience is these industries' bad luck.

BUT beyond these practical arguments, one has long sensed, and does still, some deeper, less articulate distaste for the motor industry and many of its works, in Whitehall attitudes. Parts of it might be disentangled (if rather parodied) as follows: Personal consumption is by no means a Good Thing ; when it takes the form of a great extension of motoring, a slightly vulgar form of conspicuous consumption, it should be frowned upon by decent middle-class people ; when this extension is promoted by a pyramiding of consumer debt, particularly that faintly unsavoury form of debt hire purchase, it encourages the masses to live dangerously beyond their income on frivolities ; and that when motors compete with Good Things such as power stations or machine tools for materials, skilled men, or simply savings, they should be put firmly in their place. There are some strands of middle-class prejudice woven in. The very phrase " artificial obsolescence," and the sometimes inelegant variations of chrome to face-lift last year's car, affront the intellect of people who like to think they make up their own minds (and cannot afford a new car even every two years). Some people in the motor industry still think that the years of waiting lists for cars—and of the kinds of odd customers who managed to jump those waiting lists—still rankle and feel that " Of course, he probably gets it off the tax " plays its part today. There may be, even, touches of the downward envy sometimes apparent in Britain today : it was bad enough when one's charwoman acquired the television first, but now her husband has the impudence to appear in a new Anglia while one is still thinking about replacing that handsome old Riley they don't make any more. And there are some breezy practical arguments in it—" Motoring used to make sense while there was still room to move on the roads," or " Who'd drive a car into London nowadays ? " (though plenty do . . .).

There is some empirical force in the economic arguments, and some of the prejudices are understandable ; but both could add up to a dangerously distorted picture of the real significance of the motor industry in the British economy—and society—today. Coincidentally or not, when the industry has been bullied with steel allocations or squeezed by restrictions on home sales, its exports have sometimes, relatively, gone ahead. On occasions, private motoring, as one of the fastest-growing elements of consumption, has boomed while fixed investment has languished. The practical arguments about congestion do gain strength while motoring grows faster than road capacity, as it still does—which is hardly the motor industry's fault.

Nevertheless, this dynamic industry, feeding a currently irresistible urge towards private transport, is steadily growing more important within the British economy. This country is not yet at Mr Charles Wilson's point of "What's good for General Motors is good for the United States," but it is becoming much more so than it was. In 1956-57 during an investment boom that was keeping much of the rest of industry busy, recession in motors was largely responsible for keeping the total industrial production index flat; in 1957-58, with many other industries on the decline, the rapid recovery in motors held the index up. The politicians and civil servants who slapped down home motoring in the inflation of 1955 have it mainly to thank for the fact that their disinflationary policies have been able to work without causing too much recession, right through to early 1958. The ramifications of the motor industry throughout this economy have perhaps not yet been fully realised anywhere.

Moreover, in the invidious categories of national expenditure, motor output usually wears a misleading label. It is ordinarily labelled as a producer of "durable consumer goods." In fact, on official figures, only 20-25 per cent of its production is paid for with personal expenditure. About a half goes abroad (as about 10½ per cent of Britain's total exports). And nearly a third—a quarter of the cars and half the commercial vehicles—ranks as the capital investment of which motoring is so often held up as the wasteful opponent. Indeed, the motoring industry may well rank second only to building among the largest suppliers of capital goods to industry in this country.

Restraint upon motor sales—and there is still, ridiculously, some purchase tax even on commercial vehicles—is therefore not the neat black-and-white limitation of consumption as against investment that it is usually, crudely—and officially—taken to be. (This is not to accept the quasi-moral distinction often made between these two categories—which in its extreme assumes that the object of the whole economic exercise should be always jam tomorrow but never jam today.) It operates against a part of business's capital expenditure that only the economically illiterate can rank below the salt (are business journeys by car unnecessary?). And the prejudice against part of what the motor industry does could indeed operate against its third role as Britain's leading exporter. The crude argument that to restrain sales on the home market drives cars abroad is certainly oversimplified: the motor industry has some fairly powerful points when it argues the very reverse.

IN principle, the industry's argument is simple and familiar: it rests upon the economies of scale. European motor manufacturers, it runs, are at a level of volume in production where additional volume brings sharply increasing rewards in lower costs (through better spreading of overheads and in particular of the expensive tooling and dies required in modern automobile manufacture): artificial restraints on that volume, by denying potential reductions in costs, hamper the manufacturer in competing with makers abroad upon whose volume of output no such restraints are imposed. To support this, they draw some evidence from abroad: Germany and France, whose manufacturers have been less hobbled at home, have certainly managed a faster rise in exports as well as a faster rise in their home sales over recent years. From this basic premise the industry's conclusion runs smoothly: the more relaxation of fiscal restraints upon British motoring, the better the chance for British motor exports. In particular, at the Motor Show, much argument is being heard about cuts in purchase tax—and in general, about a more positive attitude from Whitehall towards this "growth industry."

Without wholly accepting the thesis that high exports need unrestrained home sales (is it quite as profitable to export a car as to sell it at home?), many people would support the specific plea for tax reduction, at this time; and would agree that politicians and civil servants need to clear their minds about the significance of this increasingly important industry, now and at all times. If reflation over the winter needs further encouragements to consumption—and over the next year or two rising consumption is likely to be a stimulant to private industrial investment, rather than its rival—then cuts in purchase tax on motor vehicles might rank pretty high among the Chancellor's array of possible encouragements. (It might be added that if it were done when 'tis done t'were well it were quickly: nothing would more neatly slice the top off the industry's pre-Easter car sales than a widespread expectation that purchase tax might come off in the budget.) But even more important is the need for Whitehall in general to come to terms with the role that private transport in general, and the motor-car in particular, seems certain to play in British society in the coming decades.

IT may be, as our Detroit correspondent argues in a later article, that the motor-car is now being superseded as a status symbol in American society by new forms of conspicuous consumption: if so, that may have repercussions upon the future of the motor-car industries of the world. But there is no doubt that in Britain, as in Western Europe, the motor-car is only just beginning to come into its own as one of the most prized possessions of the rising, free-spending lower middle-class consumer—upon whose growing purchasing power and habits of purchasing most of the hopeful projections of economic growth to which our societies are still committed ultimately depend. The motor-car, as a repository of convenience, economic achievement, and exuberant self-expression, even more than simply as a means of door-to-door transport, is the key symbol of the rising standard of living in European societies; the social revolution of our times is nowhere better expressed than in the Popular that usually beats the Rolls-Royce away from the traffic lights.

No puritan prejudices, nor subtle balancing of private versus public transport economics, will withstand this urge to own and run one's motor-car (and probably, not, indeed, the rather parallel commercial urge to own one's own lorry, which one suspects is often not costed much more closely than the private motorists' car travel). Nor is increasing traffic congestion likely to stem it. It can be argued that motor transport can reach a point of not merely diminishing but negative returns—after a point, the more cars there are in a city the less transport—but this would come better from a community that had made some attempt before this to adapt some of its roads to that new-fangled thing called the internal combustion engine. No such arguments are likely to prevail; nor is the importance of the motor industry to the British economy likely to cease growing. Whitehall, again, is never likely to relinquish its ability to control the economy partly through this powerful lever. But it would be wise to think through what it does to move this industry more carefully—and to put some of its vestigial prejudices against mass motoring back into the social history where they belong.

Motoring on Credit

ONE fundamental change in official attitudes towards mass buying of motor-cars along with other durable consumer goods—it must, perhaps, be recorded along with the slow stirring of official energies towards making British roads relatively more modern—is the transformation of hire purchase. Until this summer the limitation of instalment credit facilities, partly by the formal control of the terms upon which contracts could be arranged and partly by an informal but totally effective reduction of the credit lines allowed by banks to hire purchase, was one of the battery of restraints that officialdom placed upon the expansion of motoring in Britain. And it was an extremely important weapon in that armoury.

The whole motor trade depends on hire purchase, for although less than a quarter of the new cars are sold on instalments, for every new car so sold, five or six second-hand cars are the subject of HP agreements. Against the sale of most new cars, a used car is traded in, and the price which the dealer can afford to pay for it depends essentially on his being able to resell it, usually to a buyer who can only buy if he can be helped with HP. And the same process continues down the scale, with third, fourth and fifth-hand cars. Restriction of HP was therefore able severely to limit the development of the whole car market.

Until the relaxation of July 3rd, the loans of the banks to HP companies were restricted to about 60 per cent of the amounts at one time available, at the beginning of 1955. The limitation of financial facilities did not fully apply to loans to small companies ; thus a loop-hole was left for a great growth of small " mushroom " finance companies, which sometimes, indeed, might enjoy the economic advantages of a small, frugally conducted, operation, but which as a rule had to make higher charges to the hirer, once again contributing to increasing the effective cost of motoring to the consumer. To a considerable degree, the general effect was mitigated by avoiding action taken by the finance companies through seeking deposits from the public. Total figures of the additional funds thus procured are not available ; but the total might be estimated at between £25 million and £50 million. In addition to the funds thus acquired in a grey market on deposits, the finance companies also added to their resources some millions of share capital—necessary, of course, to keep a proper financial balance between borrowings and share capital—in another grey market, by the acquisition of " shell " companies. Using the funds from these unhallowed sources, the finance companies may have made possible the sale of an additional 50,000-100,000 new cars a year.

Since that relaxation, in a remarkable rush, instalment buying has been made thoroughly respectable. The banks had hardly ceased tumbling over each other to buy large shareholdings in the majority of the really big finance companies before they leapt into another scramble to begin competing on their own account with their new part-subsidiaries. Personal loans were offered to compete with ordinary hire purchase facilities—offering some advantage in the price of financing to anybody who pays normal rates of income tax or surtax ; this in its turn set off some reductions in rates by the finance companies. Perhaps more importantly for the financing of motoring on credit, the financial link with the banks has automatically eased the limitation of credit to the finance companies : personal loans may well slice some of the business off the hire purchase companies, but the curb on finance that led them into the grey markets for money has gone.

If these relaxations are to be taken as evidence of some genuine shift in official attitudes towards motoring, one would expect a continued and considerable expansion of " motoring on credit," as a major growth element in the car population, during the coming years. In this article some figures are set down of the possible development of the market that might be expected with only a moderate relaxation in Whitehall's attitude to the industry, and some possible financial repercussions are measured.

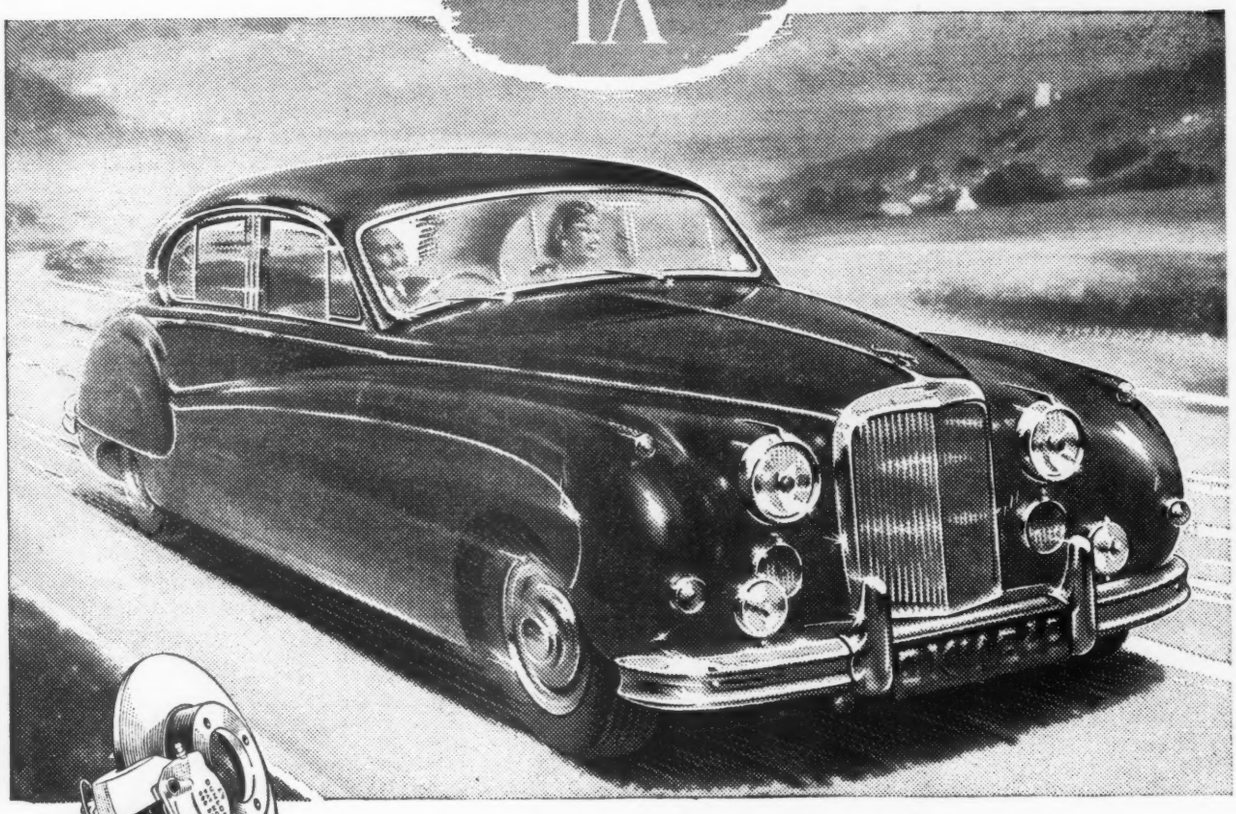
ESTIMATED GROWTH OF BRITAIN'S CAR POPULATION

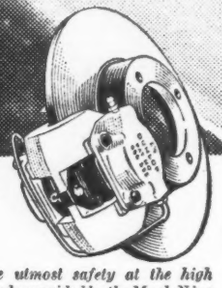
Over the last 5 years :	Cars classified by HP rating	Cars classified by cubic capacity		Total	Increase over previous year	
					Number	%
	'000s	'000s	'000s	'000s	'000s	
In use Sept., 1953	1,766	...	996	2,762	...	...
Oct., 1953 to Sept., 1954						
New registrations....	...	+368	...	...	...	...
Scrapped.....	−18	− 13	+355	...	...	...
In use Sept., 1954	1,748	...	1,351	3,100	335	12·3
Oct., 1954 to Sept., 1955						
Registered	...	+485	...	...	...	...
Scrapped.....	−50	− 8	+477	...	...	...
In use Sept., 1955	1,698	...	1,828	3,526	425	13·7
Oct., 1955 to Sept., 1956						
Registered	...	+447	...	...	...	...
Scrapped.....	−80	− 5	+442	...	...	...
In use Sept., 1956	1,618	...	2,270	3 888	360	10·3
Oct. 1956 to Sept., 1957						
Registered	...	+392	...	...	...	...
Scrapped.....	96	− 3	+389	...	...	...
In use Sept., 1957	1,522	...	2,659	4,181	295	7·7
Oct., 1957 to Sept., 1958						
Registered	...	+515	...	...	...	...
Scrapped.....	100	− 10	505	...	...	...
	1,422	...	3,164	4,586	400	9·9
After 5 more years :		At a 9 per cent annual rate of growth.				
In use Sept., 1963	225	...	6,680	6,905	570	9·0
		At a 6 per cent rate of growth:				
In use Sept., 1963	100	...	5,900	6,000	340	6·0

Two sets of estimates are made of the future growth of the country's car population over the next five years. One is on the footing that the total car population of the country grows at the rate of 9 per cent per annum—a rate of growth that several European countries have exceeded in recent years ; the other on the much more modest footing of a rate of 6 per cent (Britain's rate of growth, 1956-58, has been over 8 per cent per annum). In the first part of the table, figures appear of past years (including estimated figures for the latest months of this year, for which figures are not yet published) consisting of the total number of cars registered at any time in the September quarter of each year ; the new cars registered in the twelve months, October to September ; and the apparent " scrappage," being the

And now the JAGUAR

mark nine IX





The utmost safety at the high speeds provided by the Mark Nine is ensured by Dunlop Disc Brakes which are fitted to all four wheels.

WITH 3·8 LITRE 220 B.H.P. ENGINE, DISC BRAKES AND POWER-ASSISTED STEERING

The Mark Nine Jaguar, the continuation of the famous Mark Seven and Mark Eight Series, amply demonstrates the success achieved by Jaguar engineers in their work of constantly developing the characteristics which the ideal luxury car should possess. Thus, the Mark Nine is characterised by phenomenal acceleration and the ability to attain high cruising speeds of 80/90 m.p.h. with a maximum of 115 m.p.h. Accurate finger-light power-assisted steering ensures completely effortless control at all speeds whilst the unparalleled stopping power of the race-proved Dunlop Disc Brakes on all four wheels invests the Mark Nine with the highest degree of safety. With its superb finish, luxurious interior furnishings and advanced technical specification, the Mark Nine takes its place as an outstanding addition to the Jaguar range of fine cars.

THE JAGUAR RANGE OF MODELS NOW COMPRISES:-

The Mark Nine Saloon

The Mark Eight Saloon

The 3.4 Saloon

The 2.4 Saloon

The XK150 Drophead Coupe

The XK150 Fixed Head Coupe

The XK150 Roadster

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difference between the registration figures for one September and those for the previous September, plus those newly registered in the intervening twelve months. The car population is divided into two groups, those registered on the basis of the old RAC rating, that is, cars first registered before the war or up to the end of December, 1946, and those registered on a cubic capacity rating, which applies to all those first registered in or after January, 1947.

In the projected figures set down for the five years 1958-63 the major assumption is the rate of growth of the total car population ; from this, and from the rate of scrappage assumed (a figure of secondary importance) simple arithmetic determines the possible volume of new registrations. It may be observed that the rates of scrappage assumed, especially of pre-1947 cars, are taken at a higher figure when the total rate of growth is estimated more conservatively—on the ground that a generally more restrictive attitude to private motoring, whether by higher levels of petrol taxation, or even less adequate development of our road system, will diminish the charm of keeping more elderly cars in use.

These two sets of figures give total car populations respectively of 6.0 and 6.9 million. These, with a total UK population (1957) of 51 million are equivalent respectively to 8½ or 7½ persons per car owned. They can be compared with the present figures of 3 persons per car in the USA and 5 in Canada. (On similar projections, one would expect a more rapid growth of motoring in most western European countries.) On the basis of these figures, and of other assumptions, it is possible to frame an estimate of the additional resources which might be required to finance instalment or other forms of " deferred payment purchases " of cars, whether by hire purchase, by personal loans, or by other bank accommodation.

The records of a substantial sample of HP contracts show that, in recent years, the number of contracts outstanding at any given end-September date tends to be very close to the number of contracts entered into during the previous fifteen months. Taking the figures reported by HP Information Ltd. of the number of contracts initiated, the following table can be constructed:—

Sept.	Total number of HP contracts initiated in previous 15 months	Number of contracts for used cars to each for a new car	Car Population	Number of contracts extant as per cent of car population	Number of contracts for new cars as per cent of new cars registered
	'000s		'000s		
1954	331·8	5·7	3,100	10·7	11·1
1955	502·4	4·1	3,526	14·3	17·0
1956	528·0	4·4	3,888	13·6	17·3
1957	689·0	6·2	4,181	16·5	20·1
1958	984·2	5·7	4,586	21·4	21·2

In making a projection for future years it seems reasonable to anticipate that, with car ownership spreading into ever-lower income groups, the proportion of owners who will need financial assistance in buying their cars will increase. One would expect increasing competition for business between finance companies and the banks (and some relaxation in the legal control of HP terms) to bring about an increase in the average period over which the user pays for his car ; and hence a growing proportion of the total car population on which instalments or deferred payments

Three Ways to Finance a Car

WITHIN the past two months, personal loans from the banks have become a serious—though not yet an overwhelming—rival of conventional hire purchase financing for the affections of the car-buying public. Though exact figures are not available, it is suggested that nearly half of the personal loans made thus far by the banks which make them have gone toward the purchase of an automobile. The biggest advantage that personal loans can offer over ordinary HP arrangements is that of lower cost ; whereas service charges on hire purchase advances presently vary between 7½ and 10 per cent, depending on whether a new or used car is bought, interest on personal loans is fixed at 5 per cent. In fact, the gap is much wider, since in each case the interest is charged for the full period, but on the initial balance borrowed, which makes the effective annual rate approximately twice as high as it is stated to be. In addition the interest paid on personal loans is deductible when computing income tax, which HP charges are not ; and the debt is terminable at death.

Personal loans still have some disadvantages for car purchases. The most important of these is that, while hire purchase credit has been used to buy anything up to a Rolls-Royce, the maximum under most banks' schemes is £500, and the average loan is said to be running at about half that amount. Since the banks keep in line with the Government's restrictions on hire purchase transactions (which limit advances to two-thirds of the total price for a maximum of two years) the price of a car bought this way is effectively limited to around £750, unless the motorist has a trade-in to offer or can content himself with a rather smaller proportion of the price on credit than hire purchase would give him. In addition, it is necessary to have an account with a bank before borrowing from one, which doubtless disqualifies some of those who buy their cars on credit.

THERE are other sources of credit available to the motorist, such as a simple bank overdraft—the cheapest way of all, if he can get one—and one or two unusual savings-cum-credit schemes that are variants of ordinary hire purchase ; however, the amount of financing done in these ways is probably small. But there is a third method of paying for one's motoring that originally became highly popular with certain motorists at the time when restrictions on HP were more severe. This is long-term hire. For a fixed annual or monthly sum, many car-hire firms will provide the motorist with a new car of his choice for a period that may be as long as two years.

It is difficult to compare the costs under this method with those of acquiring a car through hire-purchase or personal loan, since the rental charges usually include a certain amount of maintenance, service, road tax, and sometimes oil (though not petrol). Hire avoids the charge for depreciation that the car owner must suffer but may well not provide for in cash (or may reckon more than as covered by his instalments). The rates vary widely, depending on the "extras" included ; but an average rate for a medium-priced small car is about £300 a year, on a two-year contract.

This is generally considered rather an expensive way of paying for one's driving ; however, it has the advantage of much less troublesome (and probably cheaper) servicing. It would scarcely seem to be economic for the average purely private motorist in Britain, or even for the motorist who insists on a new car every two years ; in the United States, where depreciation is much more rapid in the early years of a car's life, it is apparently more feasible. But an important factor in choosing between the three methods is the tax status of the motorist.

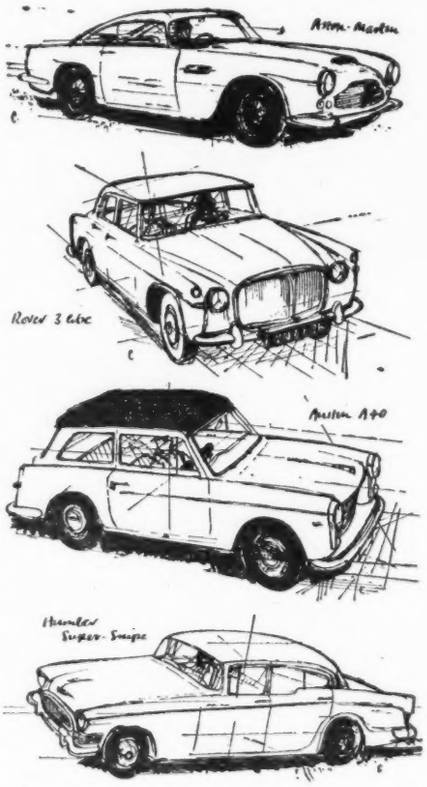
are still outstanding. These assumptions lead to the following projection:—

	9 per cent rate of increase in total car population			6 per cent rate of increase in total car population		
	Cars on Credit	Total Car Population	Per cent on Credit	Cars on Credit	Total Car Population	Per cent on Credit
1959	1,224	4,896	25	1,190	4,762	25
1960	1,467	5,337	27½	1,363	5,047	27
1961	1,745	5,817	30	1,551	5,350	29
1962	2,029	6,340	32	1,729	5,670	30½
1963	2,315	6,911	33½	1,923	6,010	32

At the end of June, 1958, the total amount outstanding on hire purchase contracts for cars was £170 million, or about £200 per car on the number of cars on which agreements were then extant. It seems reasonable to expect that by September, 1963, apart from changes in prices the average amount outstanding would be increased by two factors: first, that with increasing competition, the proportion of down payments may be slightly reduced, leaving an increase in the balance to be outstanding; second, there will be a decrease in the average age of the car population, with a consequent increase in the average price of used cars in proportion to new prices. With increasing production, real costs of production, per lb of weight, should come down; but probably no more than enough to offset the fall in the real value of money that all but the hardiest of optimists must expect to continue. But it has also to be reckoned that an increasing sales to people with lower incomes will reduce the average size and weight of the car population.

On balance, an increase of 10 per cent in the average amount outstanding on each car, of say £220, might be assigned to these factors. This would give a total investment, in September, 1963, by finance companies and banks of £509.3 million on the assumption of 9 per cent as the annual rate of growth, or £423.1 million at the 6 per cent rate of growth. These figures imply an increase of, respectively, £340 million or £250 million in the total investment in motor-car paper above last June's figure of £170 million; or, say, £50-£70 million more each year. The additional capital raised in recent months by HP finance companies seems likely to provide additional resources adequate for no more than two years' growth at this rate, even making some allowance for the proportion which is likely to be provided by the banks either by their own loans direct to car-owners, whether or not labelled "personal," or by increases of capital of the companies that are now wholly or partly owned subsidiaries. It looks as though, on these assumptions, there should be enough business for all the suppliers of credit for financing cars in the long run. But it may well be that in the short run there will be more funds seeking employment than would-be car owners seeking finance; and there might be an out-of-balance period in which competition would force down rates and charges. Such calculations assume a smooth progression in car population, ignoring intermediate fluctuations. If the present recession continues, it is unlikely that the higher figures for 1958-59 would be realised, but, if overall economic activity thereafter expands again, events would probably show that the demand had been deferred. But a lumpy curve, which might conceivably put the total home new car demand for 1959-60, or 1960-61, up to the one million unit level, might raise some interesting and difficult problems in the financing of motor ownership.

Newcomers to the British Range



AMONG the high production cars which form the main output of the British industry and the staple diet of its customers, the last year has brought no new models, and few "face lifts," though Michelotti has cleaned up the rear body styling of Standard's Vanguard saloons. But among the models built in smaller volume, which between them make up an output equalling the total volume of many an industry that would not like to be called small, several new models, or substantial variants of old, are on show at Earls Court.

For the young of both sexes and all ages, the most coveted of the newcomers will certainly be the **Aston Martin DB 4**—a two-door saloon to seat a driver and passenger in great comfort, and two other passengers below the salt. With a kerb weight of 26 cwt and 240 BHP of power from the 3.7-litre engine, the maximum speed will equal that of any four-seater car in the world, close to 150 mph; and at any speed readily attainable on English roads, the acceleration will be limited rather by the adhesion of the wheels than the output of the engine. The bodywork is designed by Superleggera Touring of Milan, and uses metal of almost every conceivable shape and section to achieve rigidity at the minimum weight. The very low total weight is thus achieved only by a combination of very careful design and avoidance of parsimony; and the resulting price, £2,650, or, with purchase tax, almost £4,000, is less than might have been feared in a car of this class

For those whose desire for performance has to be satisfied at lower figures both of performance and of price, BMC has added to its range two new models—the **Twin Cam MGA** and the **Austin-Healey Sprite**. The new MG engine with twin overhead camshafts gives an output of 108 BHP or 50 per cent more than the engine in the lower-priced MGA car which has the same body; it achieves a reduction of more than 30 per cent in the time needed to accelerate from rest to 50 mph, and a top speed of almost 115 mph. The Austin Healey Sprite uses the BMC 948 cc engine, with an open body, and a total kerb weight of no more than 12¾ cwt.

The new **Jaguar XK 150** open models which throughout the summer have been kept for the American market are now available to all. It is a fine feat to be able to produce cars that in performance, road holding ability and general amenity fall little short of the Aston Martin, at prices—around £1,200 plus PT—not out of sight of the Twin Cam MGA.

This range of British sports cars, all introduced within the last year, is quite without parallel in any other country in the world. In fact, the total range of sports cars offered in the rest of the world, taken altogether, does not match

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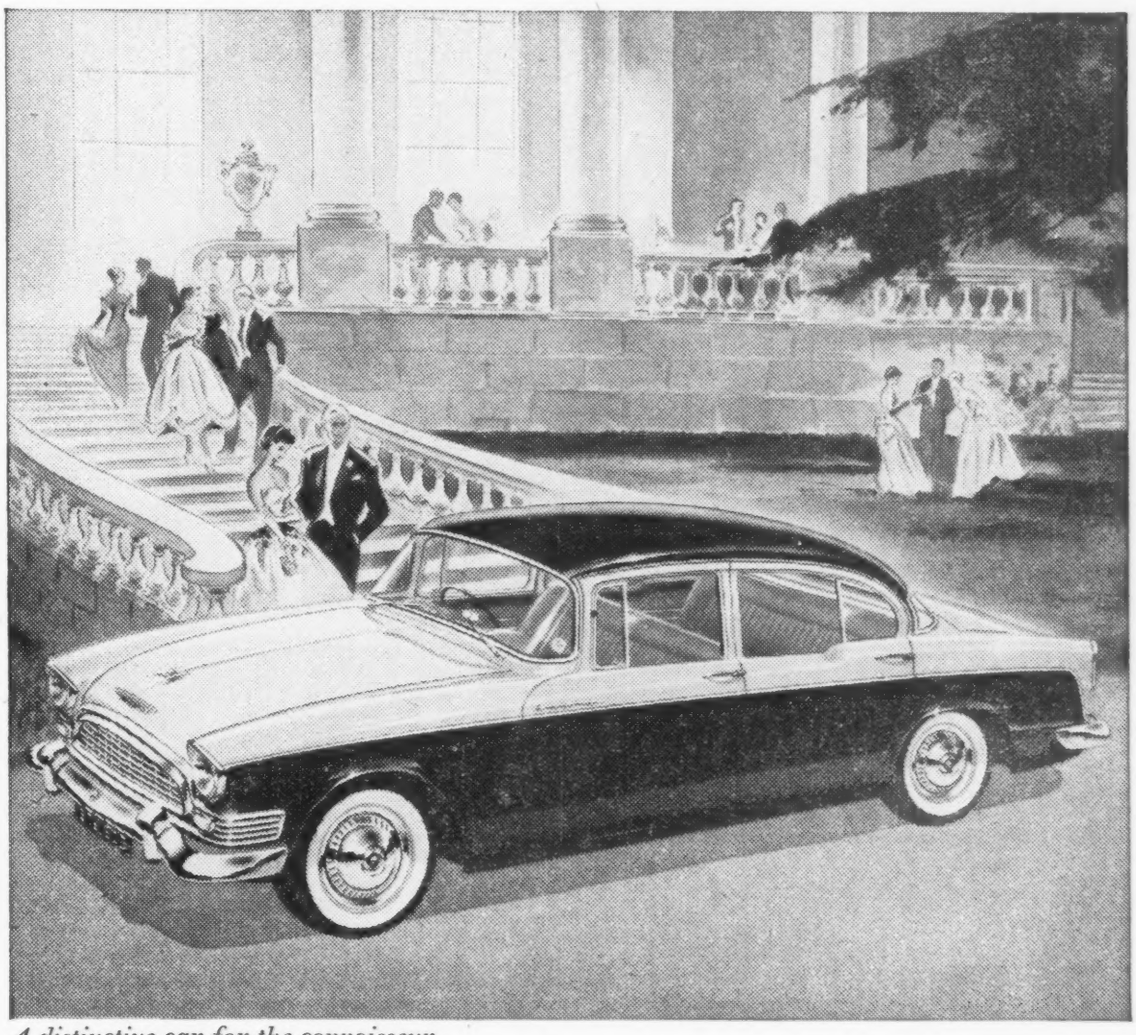

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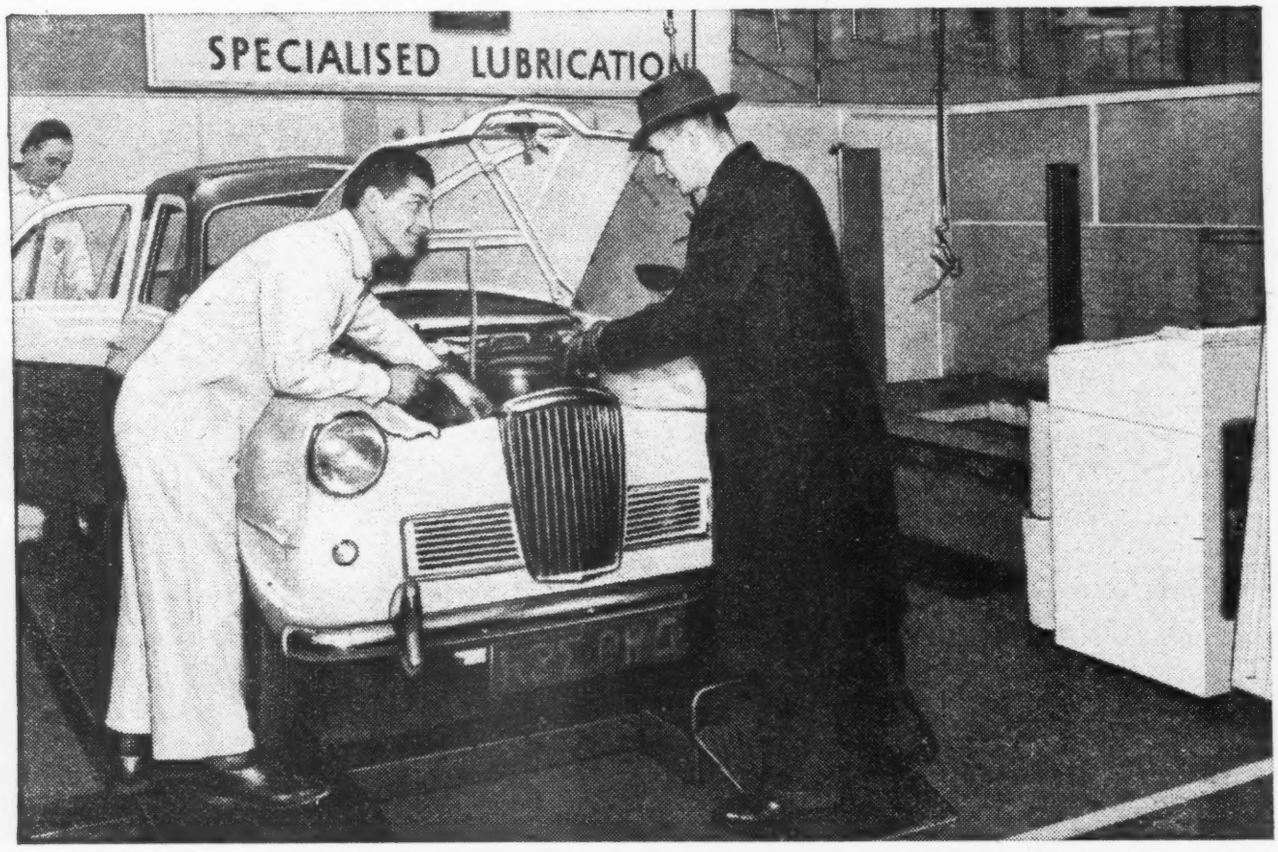

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BP Energol 'Visco-static' has been tested with the radio-active wear detector on a family car in normal day to day use. Results have confirmed those obtained in the laboratory – 80% less engine wear compared with conventional premium grade oils.

Save on petrol too

If you do a lot of start and stop running you'll find you save up to 12% in petrol. Even if you do long journeys you'll still get a worth-while saving.

There's no need to change the oil for change of season when you're using BP Energol 'Visco-static'. You use the same oil for winter and summer.

If your car isn't new

You can still benefit from BP Energol 'Visco-static' in any engine that is not unduly worn. But if your engine is nearly due for an overhaul you are advised to use the normal recommended grades of BP Energol.

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it, even if price is disregarded; and of the quite modest choice available elsewhere, there is hardly one of which it could not truly be said that there is a British sports car, of specification reasonably close to it, but at a far lower price.

In more humdrum fields, the most important addition to the British range consists of three full-size (by UK standards) saloon cars, the **Jaguar Mark IX**, the **3-litre Rover**, and the **Humber Super Snipe**. The Jaguar Mark IX is a close relative to the Mark VIII, using the same body shell, but with a larger engine. The engine is a further variant on the 3.4-litre engine that made its debut nine years ago in the XK 120 open two seater. It is a six-cylinder engine with twin overhead camshafts—a technical luxury making possible very high specific power output, which was always assumed to be prohibitively expensive until the design and production team headed by Mr W. M. Heynes showed that it could be made at a cost permitting a remarkably low final price. A year after its debut, it was used for the Mark VII Saloon; and its development has continued ever since, both with its original cylinder dimensions, with its reduced stroke—in the 2.4 Jaguar saloon—and now with an enlarged bore.

The Jaguar 2.4-litre saloon had a smaller body than the Mark VII—a compact body, giving excellent accommodation for four-five persons. Surprisingly—such are the hazards of design—the 2.4 Jaguar turned out to be not much more than an ordinarily good motor-car; but when the full-stroke version of the 3.4-litre engine was substituted—which might have been thought to over-egg the pudding—the result was a first-class vehicle. No doubt the tremendous performance of the 3.4 Jaguar, with 210 BHP in a saloon of 29 cwt, made the performance of the Mark VIII, with a similar engine to propel 35 cwt, seem almost staid. Thus the 3.8-litre engine, with the cylinder bore increased to 87 mm from the 83 mm of the 3.4 engine, is used in the Mark IX—the larger engine having been proved, as is Jaguar's custom, in racing.

The new engine is, very reasonably, designed to improve the acceleration of the car at moderate speeds, rather than to add much to the maximum speed, which is of the order of 115 mph. With disc brakes as standard and with overdrive or Borg Warner transmission, and power steering as optional extras, and a body which, in luxury and in detailed finish, is of remarkable quality, the Mark IX costs £1,329 before tax.

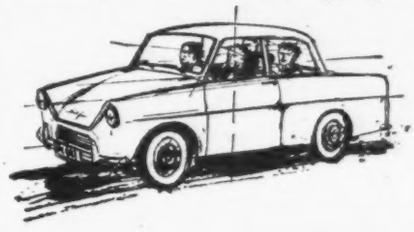
The **3-litre Rover** is an entirely new car, body and soul, engine and shell. The Rover Company has managed to get along very nicely till now, as far as the carriage trade is concerned, with only one set of new body dies since the war, using the same body panels, with the minimum of modification to produce the range consisting of the 60, 75, 90, and 105 models, with four-cylinder engines of 78 mm bore and 105 mm stroke and six-cylinder engines of 73 mm bore and 105 mm stroke. The three litre has a new six-cylinder engine of 78 mm bore and 105 mm stroke and an entirely new saloon body, a good deal roomier than the existing models, which it is to supplement rather than replace. With 105 BHP (net) in a vehicle of 31 cwt, it has of course no pretensions to the performance offered by Jaguars; but for the smaller public for whom it is intended, the paces of the Rover are fully adequate.

In much the same class, but lower priced, at £995 against £1,175 for the 3-litre Rover, is the new **Humber Super Snipe** saloon. This has the same body pressings as the Humber Hawk introduced more than a year ago, but an excellent new engine. The power plant is a 2.6 litre 6-cylinder engine, of thoroughly modern design. With a net output of 105 BHP it compares favourably enough with the BHP of the 2.3-litre 4-cylinder engine in the Humber Hawk; but the more revealing comparison is of the 138 lb/ft torque of the Super Snipe's engine, developed at a speed of 2,000 rpm (corresponding to a road speed on top of 35 mph) compared with the 120 lb/ft of the Hawk engine. It is a measure of the advance of engine design in recent years that such an improvement can be achieved in an engine which is designed for production in modest quantities at low cost.

Since the last show, BMC have produced a variant of the Wolseley 1,500 in the **Riley 1.5-litre**—substantially the same car but with a high performance version of the BMC 1,500 cc engine. This model has not quite fulfilled the anticipation of those who hoped that a more powerful engine, allied to the suspension and steering that make the Morris Minor so charming a car, would make an outstandingly attractive vehicle. But, if the first reactions of the public reported by the trade are a reliable guide, the new Farina bodied **Austin A.40** may do very well. When the user wants only what a small economical two-door, four-seater saloon offers, the A.40 gives it, without the very mild evidence of compromise in design which is inevitable in a station wagon; and its appearance quite outshines the Austin A.35 and the Morris Minor. When the rear seats are sacrificed, a lot of space is available for lumpy loads, even though the access through a single door at either side, or an aperture at the rear limited by the lower edge of a big rear light, is restricted and the lack of flat floor space may be regretted.

Holland Enters the Car Business

In the rich variety of products that the European automobile industries offer, there have been two major gaps. The first is an automatic or semi-automatic transmission that would suit vehicles of the sizes which constitute the bulk of Europe's motor car output as well as American transmissions suit the passenger cars for which they were primarily intended. The second is a people's car that would cater for the needs of the majority of those whose incomes put them on the margin of possible car ownership—if as seems likely, a car to carry a family of reasonable size and a quota of luggage is necessary to fulfil the requirement. The DAF, shown in Paris and London this autumn by a leading Dutch commercial vehicle factory (Van Doorne's Automobiel Fabriek) could prove a strong candidate for both vacancies.



Europe has so far produced for cars of the 20-cwt-plus sizes some automatic transmissions that are near relatives of those developed in the United States. For smaller cars, a scaling down of these mechanisms provides no satisfactory answer. A transmission of this type to cope with the far smaller output of European size power plants would offer little saving of weight or cost over the transmission appropriate for the much bigger powers, and would make up a totally disproportionate part of the weight and cost of the finished vehicle. The best that has been accomplished so far is to provide—at commendably low cost—mechanisms that abolish foot operation of the clutch, absolving the driver from the need to operate the clutch but leaving him a gear-shift lever to select his ratio in a classical box of gear wheels.

Current Cars Compared

Grateful acknowledgment is made to "The Motor" for the use of this table of technical performance data established in "The Motor's" authoritative road tests.

Model (in descending order of kerb weight)	Kerb Weight (cwt)	Price (excluding PT) £	Price (excluding PT) d. per lb	Fuel Consumption * Standard mpg	Fuel Consumption "The Motor" Road Test mpg	Max. Speed mph	Max. Gradient in Top Gear 1 in	Acceleration Top Gear 10–30 mph secs	Acceleration 0 50 mph through Gears secs	Engine No. of Cylinders	Engine Bore mm	Engine Stroke mm	Engine Bore/Stroke		
1. Saloon Cars															
(a) Speed above 90 mph															
Chrysler New Yorker	39·8	$4,230	81·3	21·0	16·6	115·5	6·8	...	9·2	V–8	101·50	99·00	1·02	1	1
Bentley S	39¼	3,695	201·7	21·7	16·1	103·6	8·1	...	9·2	6	95·25	114·30	0·83	2	2
Rolls-Royce Silver Cloud	38	3,795 (Including P.T.)	214·0	22·0	14·5	102·9	7·7	3·1	10·0	6	95·25	114·50	0·83	3	3
Jaguar Mark IX	35½	1,441	86·9	25·5	15·2	114·4	7·2	...	8·5	6	87·00	106·00	0·82	4	4
Daimler 3·8 Majestic	35	1,662	101·8	25·8	19·3	100·6	8·7	...	10·1	6	86·36	107·95	0·80	5	5
Chevrolet Bel Air	33	$2,493	57·8	24·5	17·8	105·5	5·5	...	8·7	V–8	98·42	76·20	1·28	6	6
Humber Super Snipe	31½	995	67·7	29·5	20·3	94·5	9·5	...	13·4	6	82·55	82·55	1·00	7	7
Wolseley Six-Ninety	31½	850	60·5	25·5	22·1	95·0	11·1	...	12·9	6	79·375	88·90	0·88	8	8
Ford Fairlane	31¼	$2,473	100·0	21·5	14·2	96·1	6·5	3·9	11·2	V–8	91·95	83·82	1·10	9	9
Rover 105 S	30¼	1,095	76·8	34·8	25·5	95·7	8·1	11·5	11·9	6	73·025	105·00	0·70	10	10
Jaguar 3·4	29	1,114	82·3	28·8	21·1	119·8	8·2	3·1	8·7	6	83·00	106·00	0·78	11	11
Austin A.95	27	659	54·7	29·2	23·1	92·0	10·4	4·4	13·3	6	79·40	89·00	0·89	12	12
Mercedes Benz 220 S	25·9	1,595	132·0	32·8	23·8	98·4	8·5	9·8	12·8	6	80·00	72·80	1·09	13	13
(b) Speed below 90 mph															
Renault Fregate	27¼	894½	70·3	31·7	26·3	80·6	6·1	7·2	18·0	4	88·00	88·00	1·00	14	14
Hudson Rambler	24½	$2,047	66·7	35·0	23·1	85·7	6·5	7·2	12·3	6	79·40	107·90	0·73	15	15
Standard Vanguard III	24	675	60·3	37·3	25·9	83·7	8·9	10·9	13·8	4	85·00	92·00	0·92	16	16
Citroen ID19	24	998	89·1	47·8	34·8	86·5	15·4	...	12·8	4	78·00	100·00	0·78	17	17
Ford Zephyr Mark II§	24	610	54·5	33·33	28·5	88·7	8·2	...	11·6	6	82·55	79·50	1·03	18	18
Vauxhall Cresta	23·5	715	65·3	33·2	25·2	89·8	8·6	8·5	11·4	6	79·40	76·20	1·03	19	19
Standard Ensign	22·6	599	56·8	36·6	28·5	77·6	12·6	13·7	15·3	4	76·00	92·00	0·82	20	20
Ford Consul Mark II	22	545	53·1	34·2	22·1	79·3	10·6	11·1	14·8	4	82·55	79·50	1·04	21	21
Morris Oxford	22	589	57·4	33·8	27·0	74·4	9·3	9·6	18·7	4	73·025	88·90	0·82	22	22
MG 2B Magnette	21¾	714	70·3	33·8	25·5	85·8	13·5	11·4	13·3	4	73·00	89·00	0·82	23	23
Peugeot 403	21¼	796	80·4	40·8	31·3	80·9	14·0	...	16·9	4	80·00	73·00	1·09	24	24
Sunbeam Rapier§	21¼	695	70·1	40·3	30·1	87·5	10·1	...	13·5	4	79·00	76·20	1·03	25	25
Vauxhall Victor	20½	498	52·0	36·3	31·0	74·4	13·5	12·6	18·0	4	79·37	76·20	1·04	26	26
Austin A.55 Cambridge	20¼	538	56·9	47·5	32·8	80·1	10·1	12·1	15·0	4	73·00	89·00	0·82	27	27
Hillman Minx de Luxe	20	529	56·7	38·5	31·8	76·9	10·4	12·5	16·3	4	76·20	79·00	0·96	28	28
Volvo PV.444L	19	740	83·4	40·5	28·5	94·7	10·4	10·6	10·7	4	79·37	80·00	0·99	29	29
Riley One-Point-Five	18½	575	66·6	42·0	32·8	85·4	10·6	11·0	13·0	4	73·025	88·90	0·82	30	30
Simca Arondel	18¼	599	70·4	39·8	29·3	82·1	11·1	...	13·0	4	74·00	75·00	0·99	31	31
Fiat 1200 Granluce	17¾	788	96·3	52·0	35·7	84·9	12·4	13·9	13·6	4	72·00	75·00	0·96	32	32
Nash Metropolitan	17	475	59·8	37·7	32·1	75·0	8·8	9·0	15·3	4	73·025	89·00	0·82	33	33
Ford Anglia, 2-pedal	15¾	416	56·6	40·3	33·9	67·4	14·4	12·4	23·8	4	63·50	92·50	0·69	34	34
Ford Prefect de Luxe	15½	438	60·5	37·8	33·1	70·7	12·0	13·2	20·2	4	63·50	92·50	0·69	35	35
Standard Pennant	15	485	58·0	...	40·2	70·2	13·5	14·6	18·8	4	63·00	76·00	0·82	36	36
Standard 8	14¾	425	61·7	58·0	46·0	66·5	14·9	...	21·8	4	58·00	76·00	0·76	37	37
Ford Popular	14½	295	43·6	41·3	33·5	59·8	11·1	11·4	23·3	4	63·50	92·50	0·69	38	38
Volkswagen	14	505	77·3	45·2	30·8	68·2	14·9	20·2	18·2	4	77·00	64·00	1·19	39	39
Austin A.35 de Luxe	14	387	59·2	53·0	41·5	71·9	12·1	12·4	18·7	4	62·90	76·20	0·83	40	40
Renault Dauphine	12¾	505	84·9	52·0	46·2	66·4	13·9	13·9	24·7	4	58·00	80·00	0·73	41	41
Renault 4CV 750	11¾	437	79·7	54·7	47·7	62·1	11·7	12·7	24·2	4	54·50	80·00	0·69	42	42
Fiat 600	11¼	432	82·3	52·0†	44·7	58·3	19·5	23·0	32·5	4	60·00	56·00	1·07	43	43
Citroen 2CV	10½	398	81·2	68·8†	49·7	47·2	21·3	30·0	32·0‡	||	66·00	62·00	1·07	44	44
2. Sports Cars															
MGA Twin Cam	19½	843	92·6	35·7	27·6	113·0	9·3	...	7·3	4	75·40	89·00	0·84	45	45
Morgan Plus 4 Four-Seater	16¾	645	82·5	41·0	27·1	100·3	7·8	7·5	6·8	4	83·00	92·00	0·90	46	46
Austin-Healey Sport (Sprite)	12¾	445	74·8	53·5	43·0	82·9	11·7	13·7	13·7	4	62·90	76·20	0·82	47	47
Lotus Seven	8¾	771	18·9	36·3	31·0	80·4	9·3	...	11·5	4	63·50	92·50	0·68	48	48
3. Estate Cars															
Humber Hawk§	29¼	995	72·9	28·2	24·6	84·9	8·9	10·2	13·9	4	81·00	110·00	0·74	49	49
Austin A.95 Countryman	28½	834	63·3	30·0	25·4	91·2	10·6	10·1	12·5	6	79·40	89·00	0·88	50	50
Standard Vanguard Estate Car	26½	765	61·9	35·5	27·5	83·5	10·1	...	15·4	4	85·00	92·00	0·92	51	51
Morris Oxford Traveller	23¾	665	60·0	33·2	26·2	73·2	10·8	11·3	18·4	4	73·025	88·90	0·82	52	52
Vauxhall Victor Estate Car	21	620	63·3	43·5	32·0	76·8	10·7	11·6	21·4	4	79·37	76·20	1·03	53	53
Hillman Husky	18¾	465	53·1	33·3	27·3	71·4	11·1	10·9	17·8	4	76·20	76·20	1·00	54	54

* Mean of 30, 40, 50 mph † Mean of 20, 30, 40 mph

Power, Price and Performance

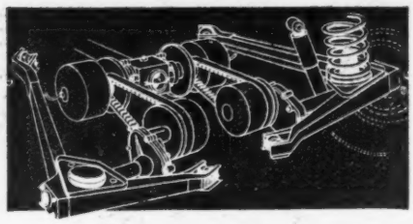
	Engine					Dimensions					Length		
	Cubic Capacity	Cwts per Litre	BHP	At Revs. per min.	Comp. Ratio	Panel to Rear Squab	Width Front Seat	Front Seat to Roof	Width Rear Seat	Rear Seat to Roof	Wheelbase	Overall	
						ins	ins	ins	ins	ins			
													1. Saloon Cars
													(a) Speed above 90 mph
1	6,250	6·3	325	4,500	8·5/1	73	54½	42	54½	39	10′ 6½″	18′ 2½″	Chrysler New Yorker
2	4,887	8·1	...	...	6·6/1	74½	54	40½	55½	38	10′ 3″	17′ 8″	Bentley S
3	4,887	7·8	...	...	6·6/1	...	...	...	...	...	...	...	Rolls-Royce Silver Cloud
4	3,781	9·4	220	5,500	8·0/1	68	55¾	39½	59	37½	10′ 0″	16′ 4½″	Jaguar Mark IX
5	3,794	9·2	147	4,400	7·5/1	74	59	40	62½	37	9′ 6″	16′ 4″	Daimler 3·8 Majestic
6	4,637	7·1	185	4,600	8·5/1	72	60½	42½	60½	38	9′ 9½″	17′ 5″	Chevrolet Bel Air
7	2,651	11·9	112	5,000	7·5/1	71	59	42	60½	37½	9′ 2″	15′ 4½″	Humber Super Snipe
8	2,639	11·8	101	4,500	7·3/1	69	55	39	56½	38	9′ 5½″	15′ 8″	Wolseley Six-Ninety
9	4,457	7·0	176	4,400	8·4/1	75½	60½	40	59½	37	9′ 7½″	16′ 6½″	Ford Fairlane
10	2,638	11·5	108	4,250	8·5/1	72	55½	41½	52¾	36½	9′ 3″	14′ 11½″	Rover 105 S
11	3,442	8·5	210	5,500	8·0/1	67	56	42	57	37½	9′ 0″	15′ 2″	Jaguar 3·4
12	2,639	10·4	92	4,500	8·25/1	67	55	42	54½	36½	8′ 10″	15′ 1″	Austin A.95
13	2,195	11·4	100¶	5,000	7·6/1	73	57	43	57	37¼	9′ 3¼″	15′ 7½″	Mercedes Benz 220 S
													(b) Speed below 90 mph
14	2,141	12·7	80·3	4,000	7·5/1	70½	54½	41	59	39	9′ 1¾″	15′ 5″	Renault Fregate
15	3,205	7·5	90	3,800	7·3/1	70	57	38	57	34	9′ 0″	15′ 6″	Hudson Rambler
16	2,088	11·5	68	4,200	7·5/1	66	55	41	54	35	8′ 6½″	14′ 3½″	Standard Vanguard III
17	1,911	12·6	66	4,500	7·5/1	70	60½	42½	59½	37½	10′ 2½″	15′ 8″	Citroen ID19
18	2,553	9·4	86	4,400	7·8/1	67?	56½	42	56½	49½	8′ 11″	14′ 11½″	Ford Zephyr Mark II§
19	2,262	10·4	82·5	4,400	7·8/1	66	52½	41½	57	37	8′ 9½″	14′ 10″	Vauxhall Cresta
20	1,670	13·5	60¶	4,000	8·0/1	65	54½	42	53½	36	8′ 6″	14′ 4″	Standard Ensign
21	1,702	12·9	59	4,200	7·8/1	69½	56½	41	56½	36½	8′ 8½″	14′ 4½″	Ford Consul Mark II
22	1,489	14·8	52¶	4,400	8·3/1	70	54½	43	55	38	8′ 3″	14′ 3″	Morris Oxford
23	1,489	14·6	68	5,200	8·3/1	63½	51	42	45	37	8′ 6″	14′ 1½″	MG 2B Magnette
24	1,468	14·5	58	4,900	7·0/1	68½	56	40	55¾	38	8′ 9″	14′ 9″	Peugeot 403
25	1,494	14·2	68¶	5,200	8·5/1	66	51	40	50	36	8′ 0″	13′ 6½″	Sunbeam Rapier§
26	1,507	13·6	55	4,200	7·8/1	67½	50½	41¼	51	37½	8′ 2″	13′ 11″	Vauxhall Victor
27	1,489	13·6	51	4,250	8·3/1	69	52	41½	53	36	8′ 3½″	13′ 11″	Austin A.55 Cambridge
28	1,494	13·4	52·5	4,400	8·5/1	69½	51	42	49½	37½	8′ 0″	13′ 7½	Hillman Minx de Luxe
29	1,580	12·0	85	5,500	8·2/1	65	48	41	44½	37½	8′ 6″	14′ 9″	Volvo PV.444L
30	1,489	12·4	68	5,400	8·3/1	63	51½	40½	51	36½	7′ 2″	12′ 9″	Riley One-Point-Five
31	1,290	13·9	57	5,200	7·8/1	64½	51½	41	52½	35½	8′ 0½″	13′ 5½″	Simca Arondel
32	1,221	14·5	55	5,300	8·0/1	67½	51¼	40	49½	36½	7′ 8½″	12′ 10½″	Fiat 1200 Granluce
33	1,489	11·4	47	4,100	7·2/1	55½	51½	40½	...	...	7′ 1″	12′ 5″	Nash Metropolitan
34	1,172	13·4	36¶	4,500	7·0/1	61	50	41	49	34½	7′ 3″	12′ 6″	Ford Anglia, 2-pedal
35	1,172	13·2	36	4,500	7·0/1	62	49½	41½	50½	35½	7′ 3″	12′ 5½″	Ford Prefect de Luxe
36	948	15·8	38½	4,500	8·0/1	60	47	42	46½	33	7′ 0″	12′ 3½″	Standard Pennant
37	803	18·4	33	5,000	8·25/1	59¼	48	42	47	34½	7′ 0½″	11′ 11½″	Standard 8
38	1,172	12·4	30·1	4,000	6·16/1	66½	43	43½	49	38	7′ 6″	12′ 8¼″	Ford Popular
39	1,192	11·8	36	3,700	6·6/1	60	48	42	52	34½	7′ 10½″	13′ 4″	Volkswagen
40	948	14·7	34¶	4,750	8·3/1	57½	48	41½	45	35	6′ 7½″	11′ 4½″	Austin A.35 de Luxe
41	845	15·1	30	4,250	7·25/1	60	49½	41½	48	36	7′ 5″	12′ 11″	Renault Dauphine
42	747	15·7	21	4,100	7·25/1	62	45	39	46	36	6′ 10½″	11′ 11″	Renault 4CV 750
43	633	17·8	21·5	4,600	7·0/1	60	47½	38	47	35	6′ 6¾″	10′ 6½″	Fiat 600
44	425	24·1	12	3,500	6·2/1	61	46	42½	48	36	7′ 9¼″	12′ 4¾″	Citroen 2CV
													2. Sports Cars
45	1,588	12·3	108¶	6,700	9·9/1	32½	47	38	...	...	7′ 10″	13′ 0″	MGA Twin Cam
46	1,991	8·4	100	4,800	8·5/1	31	45	40	...	...	8′ 0″	12′ 5¾″	Morgan Plus 4 Four-Seater
47	948	13·4	50	5,200	8·3/1	32	52¾	37½	...	...	6′ 8″	11′ 4¾″	Austin-Healey Sport (Sprite)
48	1,172	7·5	48¶	6,000	8·5/1	33½	37	37½	...	...	7′ 4″	10′ 9″	Lotus Seven
													3. Estate Cars
49	2,267	13·0	78	4,400	7·5/1	68	54	41½	54½	39½	9′ 2″	15′ 4½″	Humber Hawk§
50	2,639	10·7	92	4,500	8·25/1	64½	48	43	53½	40½	8′ 10″	15′ 1″	Austin A.95 Countryman
51	2,088	12·7	68¶	4,200	7·5/1	66	54	41	53½	41	8′ 6″	14′ 2½″	Standard Vanguard Estate Car
52	1,489	16·0	55	4,400	8·3/1	70	53¾	42½	54	40½	8′ 1″	14′ 2½″	Morris Oxford Traveller
53	1,507	13·9	54·8	4,200	7·8/1	65½	50½	41½	51	41	8′ 2″	13′ 11″	Vauxhall Victor Estate Car
54	1,390	13·5	43	4,000	7·0/1	63	51	43	52¾	40	7′ 2″	12′ 7½″	Hillman Husky

‡ Acceleration 0–40 mph § Overdrive. ‖ Flat twin, air-cooled. ¶ Net.

The DAF transmission achieves automatic variation of gear ratios by a traditional device—belt drive over pulleys of variable effective diameter, of which one contracts while the other expands. Devices of this sort were embodied with fair success, in early motor-cycles. The upper and lower limits of gear ratios given are 4.4 to 1 and 20 to 1, which provides a greater range than a conventional gear box. The ratios are changed automatically by smooth and imperceptible gradations under the influence of three factors—the tension in the belts, the engine speed, and the degree of vacuum in the induction pipe. These three influences can be combined to expand or contract the driving and the driven pulleys in such a way that for any combination of speed and throttle opening the engine speed is brought close to that which gives the power demanded most economically.

The drive is taken from the engine by a propeller shaft that drives a cross shaft through a bevel gear (with a third bevel gear wheel to give reverse) but no differential ; and thence by a separate variable drive to each wheel. Each wheel is thus positively driven, so that drive is not lost if one belt is broken, or if one wheel spins. The driving wheels are independently suspended, the flexibility of the belts providing, as a universal joint would, the necessary accommodation for misalignments due to the rise and fall of the wheels. Prolonged testing is claimed to have shown that these driving belts give a reliable life of about the same duration as the life of the tyres of the car.

COMING from an engineering firm of high standing, these claims deserve to be taken very seriously. The originators of the DAF are Leyland's Dutch licensees ; and in addition to building lorries and buses using Leyland engines, they are now actually manufacturing the Leyland Comet Diesel engines under licence—a considerable tribute to their engineering ability. The engine is a flat twin cylinder of 600 cc developing a net output of just under 20 brake horse power. This is a compact and efficient unit. It is carried at the front of the vehicle but, with the centrifugal clutch, takes up very little room and makes possible a bonnet line that enables the driver to see the road very close to the front end of the vehicle. The propeller shaft is housed in a stiff central backbone which—for not much forfeit of weight and at low cost—together with the bi-furcated frame, provides the main structural strength of the vehicle, leaving the body work to be not much more than cladding.



The front suspension is rather similar to that used on the Lancia and might be called a variation of the Macpherson suspension used on the postwar Ford passenger cars, except that a transverse leaf spring takes the place of the transverse and fore and aft links which in the Ford locate the wheel and the coil spring round the shock absorber that suspends it. The passenger accommodation is justly claimed to provide for four adults and one child, space comparable to that of the Ford Anglia. The boot is, of course, much roomier than the luggage accommodation available in any of the rear engined cars such as the Renault or Volkswagen.

THE DAF's accommodation for passengers and luggage is clearly much greater than in any of the other cars which has a prospect of offering anything like the most economical transport. With just under 20 bhp available the performance with one passenger or more is likely to be a little less than that for example of the Renault 4 cv ; but with all the space it offers fully occupied it is bound to be sluggish. But for a car of the utmost economy, this is a limitation that cannot be avoided. If the price is low enough, such a car might well gain a market in most of the countries of Europe.

Production plans are for output starting next February, and totalling 25,000 units by the end of the year, with an output, on a single-shift basis, rising to 1,000 units a week when the present equipment is fully balanced and run in. This figure is of course a long way below that necessary to achieve the level of costs necessary for a car of utmost economy. But if costs in Holland can be held close to the level which would prevail in Britain, France or Germany, the attractions of the car and the points of the design give a good prospect that, with drive and a dominating will behind it, Holland's DAF might be able to fight its way up into really big production.

Sea-Change in the American Market ?

BY A CORRESPONDENT IN DETROIT

UNLESS something drastic occurs to change their plans, a year from now the " Big Three " of America's automobile industry will put on sale passenger vehicles smaller than any they have produced since the war.

These forthcoming cars, however, will not be carbon copies of the European vehicles that have made the big American manufacturers reconsider their long-established opposition to more modest, less elaborate cars. Nor will they be identical to American Motors' Ramblers or its Austin-made Metropolitan. The fare that GM, Ford and Chrysler engineers and stylists have cooked up for the 1960 automobile buyer will be a " smaller " car, not a " small " car in the European sense. Studebaker-Packard Corp. is not even waiting for the 1960 market. It has introduced a new small car named the " Lark " for its 1959 sales year.

Whereas the imported cars that have made the largest impact on the US market all have wheelbases less than 100 inches, the new GM, Ford and Chrysler products will have wheelbases ranging from about 102 to 108 inches. They also will be lower—and look longer, the stylists hope—than the usual imported small car. Nevertheless, they will, truly, constitute a new " family " of cars from Detroit. Because of this, they have implications for a great part of all United States industry, the US motor manufacturers, and the auto producers abroad : hence the slow, cautious way that Detroit has come to its decision to produced a smaller motor-car.

For many years, the United States automobile industry has fashioned its products in the belief that as a man

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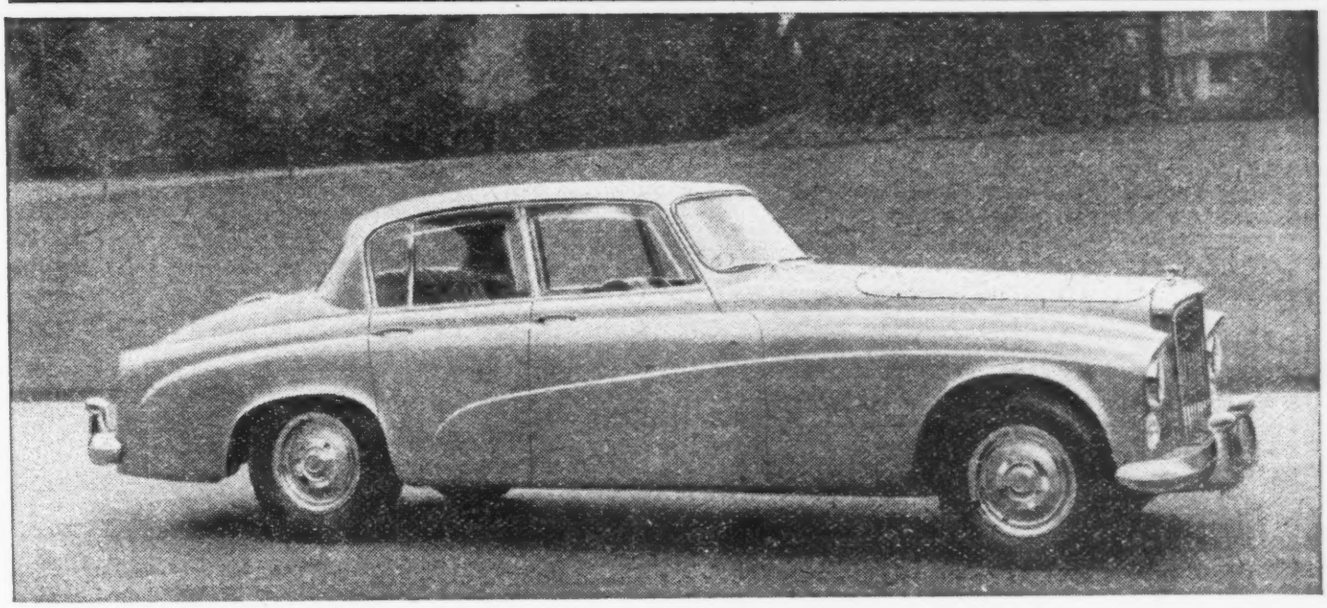

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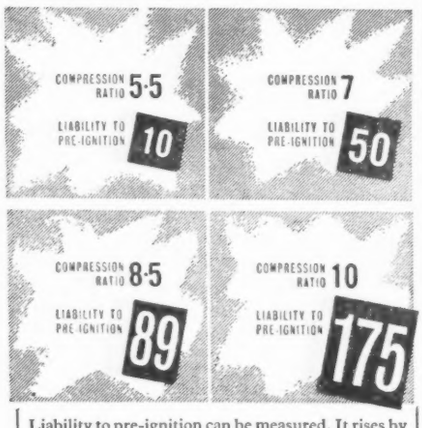
What has Super Shell got that other petrols haven't?

SUPER SHELL is the one high-octane petrol that contains Ignition Control Additive—I.C.A. And that fact was never more important than it is today. True, I.C.A. has been in the pumps for four years now, first in Shell, then also in Super Shell. But, since 1954, the nuisance of pre-ignition caused by engine deposits, which is what I.C.A. combats, has become potentially more serious year by year.

The greater need for I.C.A. today

Part of the reason is this. Over the last few years, designers have been stepping-up the compression of car engines. For an engine can squeeze more power from less petrol as its compression rises. But the snag is that quite a small rise in compression makes an engine enormously more liable to pre-ignition. The diagram shows the comparison.



Liability to pre-ignition can be measured. It rises by over 75% between compression ratios of 7:1 and 8·5:1.

The problems of heavy traffic

One other thing makes pre-ignition more serious today than it was four years ago. And that — strange as it sounds — is the growing weight of traffic on the roads. Because more traffic means delays in towns and patches of slow going; and slower going means faster build-up of the engine deposits that cause pre-ignition and spark plug failure.

What I.C.A. does for you

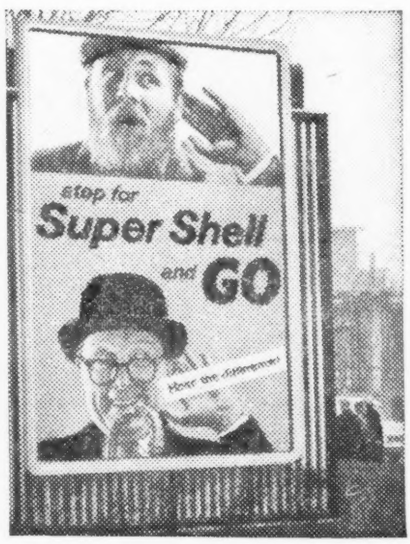
All petrols leave the deposits that cause pre-ignition when they glow. Slight pre-ignition wastes power, and therefore money. Severe pre-ignition can do serious harm to your engine — particularly to gaskets and pistons. I.C.A. in Shell and Super Shell stops pre-ignition and gives you smoother running. It also protects spark plugs from a common cause of misfiring, by insulating the deposits that can short-circuit the current. *And I.C.A. (which costs you nothing and does so much) is in Shell and Super Shell alone.*

The new family cars

Practically all British family cars have come out with higher and higher compression ratios since 1954. The list below gives a few typical examples.

Whatever your car, I.C.A. will help you to get the utmost performance and economy from it.

MAKE	1954	1958
B.M.C. (Austin and Morris)	7·2:1	8·3:1
FORD (Consul)	6·8:1	7·8:1
ROOTES (Hillman Minx)	6·63:1	8:1
STANDARD (Eight)	7:1	8·25:1
STANDARD (Vanguard)	7:1	7·5:1
VAUXHALL (Wyvern)	6·5:1	—
VAUXHALL (Victor)	—	7·8:1



attains a higher income and increased responsibility and authority in his occupation he has wanted above all else a bigger, more expensive car to show his neighbours the extent of his success.

This concept was responsible for the origin of the recent process of "up-grading" the Chevrolet, Ford and Plymouth. If it were true that Americans wanted more elaborate cars as they achieved a higher standard of living, it followed that these three brands of standard American automobile would automatically lose a number of customers year after year. To combat that assumed attrition, Chevrolet, Ford and Plymouth some years ago also began producing bigger cars in direct competition with their one-time bigger brothers, Buick, Pontiac and Oldsmobile ; Edsel and Mercury ; and Dodge, De Soto and Chrysler. Whereupon these cars got larger still.

But then came a form of competition that the American automobile industry had never envisaged—a competition from other industries for the consumer's dollar spent on prestigious purchases. Without attracting very much notice until the past year or so, things such as fine carpeting, long vacation trips, boats, and even education, became as important as cars in expressing a consumer's image of himself. It also makes less sense to a large body of Americans to spend several thousands of dollars on a new six-passenger motor-car when individual members of the family are spinning off in several directions. It makes little sense to him to spend so much money on a vehicle with high horsepower and consequent high petrol consumption when all he is interested in is a convenient vehicle to get him from here to there—the average petrol consumption for American-built cars in 1956 was 14.37 miles per gallon.

A FEW weeks ago Ford Motor Co. engaged Dr George Gallup, the well-known public opinion diagnostician, to select 400 "average" Americans from all walks of life ; Ford then brought them to Detroit to express their views on what's right and what's wrong with US motor cars. Although at this time of writing the views of the panel have not been fully catalogued, Ford has uncovered one consistent theme running through the comments: what is needed is a smaller, less costly, more economical car for running to the store and performing other errands. Dr Gallup, not the Ford company, polled the panel and reported that such a car would be one "which the wife or children—in school or working—can operate safely and inexpensively."

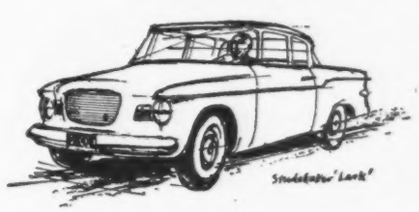
This feeling apparently began to take root a few years ago when the European motor car producers—with surplus capacity and a need for dollars—began probing the American market for their automobiles. They probably were surprised at the result. In 1948, 10,369 imported cars were sold in the United States, no more than 0.03 per cent of the total sales. Even in 1955, the greatest auto sales year ever in the United States (7.2 million), imported cars numbered only 58,566, and took only 0.82 per cent of the market. Then the flood-gates opened. In 1956, 98,187 imported cars were sold, or 1.65 per cent of the total. In 1957 imports numbered 206,827, which was 3.45 per cent of all sales. For the first six months of 1958, import sales were 159,367, or 6.73 per cent of the total market. For the full year, it is estimated sales will be just under 400,000, over 9 per cent of the total.

And while this was happening, American Motors, which was nearly out of business a few years ago, staged a comeback by selling only what its president, Mr George Romney, terms "compact" cars—100 to 108 inches in wheelbase. In 1957 AMC sold 125,000 cars. This year, its sales rising while the industry's total sales decline, AMC sales will be more than 160,000. In 1958, American Motors will turn its first profit since its creation in 1954.

Thus, a great many of the American Motors and imported cars have been sold to Americans who now appear to regard the motor vehicle only as a transportation device and not as a "status symbol." That presented Detroit with a nice paradox. On the one hand, the "Big Three" manufacturers are convinced that a great number of imported car owners bought because the imported cars themselves are a status symbol ; because they too have "snob appeal." On the other hand, sales figures show that buyers of even the lowest-priced US-built cars—the Chevrolets, Fords and Plymouths—prefer the most expensive vehicles of those factories ; the cars equipped with V-8 engines, with automatic transmissions and even with power steering and power brakes. If there is a demand for a smaller, less expensive car, the motor makers ask themselves, why do people want the higher-priced Chevrolets, Fords and Plymouths ?

THE attempt to reconcile this apparent contradiction has caused the slow, reluctant entrance of the "Big Three" into the smaller car market. "People will not buy the cheapest Chevrolet," said one last month, "because their friends will know it is the cheapest Chevrolet. These new cars will have an identity all their own ; so no stigma will be attached to their ownership."

To establish such an identity requires the new "family of cars." The US auto executives think that to duplicate the European car would be fatal. To the average American motorist there is simply no comparison between the comfort and performance of Detroit-produced cars and the inexpensive small cars from abroad. What is tolerable in an imported car, simply because it is imported, would not be saleable when coming from Detroit. Therefore, the car, while smaller, must be up to American expectations of comfort and performance. It must carry the family and its baggage and other equipment. It must be adaptable to the gadgets, including automatic transmission, that Americans demand on larger cars. It must have sufficient power to get away quickly from traffic lights and to maintain the 60-65 mile-per-hour speeds customary on turnpikes. But in size and fuel economy it must compete with cars from American Motors and from abroad.



Around that prescription, General Motors, Ford and Chrysler have designed their new smaller cars. All will have the unit (frameless) construction common in European cars of small size. They will have six-cylinder engines and extra-cost automatic transmission, both using aluminium more widely than before to reduce weight. The gross weight of these cars will be around 2,000 to 2,200 lb. The wheelbases, as has been said, will range between 102 and 108 inches. (Typical of the soul-searching that has

been going on is the fact that General Motors engineers originally decided upon a wheelbase of 98 inches ; it was lengthened at the behest of the sales department.)

All of the new smaller cars will strive to reduce or eliminate the hump down the middle that accommodates the drive shaft. At Ford, the tentative decision is for a front-mounted engine and a front-end transmission. At General Motors the thinking tends toward the opposite: a rear-mounted engine—something that has been unknown on American production cars. These smaller cars have been especially engineered for their dimensions. There are, roughly, 13,000 parts in an American automobile, and each has been separately designed to reduce size and weight. This means practically no interchangeability with the larger models. Planning is far enough advanced that tooling orders have been let and introduction dates tentatively fixed as November of 1959.

IF they are produced, they will have a marked effect on the material suppliers. For many years Detroit has been the largest single customer of the steel industry for sheet steel. One of these new, smaller cars will require only two-thirds the amount of steel customarily purchased for an automobile. Normally, the automobile industry takes about 20 per cent of the total steel output in a year. Without knowing how many of these smaller cars would be produced, it is impossible to forecast their effect on steel sales, but this much can be said with certainty : with the stress on reducing weight in the smaller cars, the aluminium industry is bound to pick up some new business from the automobile producers. This will be a shift in material usage and, while it should cause no great pain for steel companies for some years, it may account for a respectable increase in aluminium sales.

Similarly, there will be smaller areas of glass, of textiles, of plastics. However, there will be no change in the labour requirements. One of the reasons often cited by Detroit industrialists for not building a smaller car is that it takes just as much manpower to assemble a small as a big car. Then comes the thorny question of just how big and solid is the presumed market for smaller cars ? Many manufacturers' spokesmen have declared that they simply cannot begin to produce a smaller car until a market for at least 500,000 annually is assured. Today, one company's survey predicts an eventual market of 1,500,000 for the new vehicles—but it also observes that such a market is perhaps five years away.

Practically no one in Detroit believes that all of the smaller car sales will be new sales. They will have to be taken from car makes already in the market. Will these sales come from foreign producers ? Or from the producers of larger American-built cars ? One interesting opinion about what will happen is this : Chevrolet, Ford and Plymouth will become the " medium-price " cars—in other words, move up a notch on the price scale. They then will take a good part of the business that previously flowed to the larger cars, leaving the lower-priced business for the new family of cars. That would mean casualties among the brands now classed as " medium-priced."

What Studebaker-Packard Corp. is doing for 1959 is illustrative. When the corporation was formed in 1954 the goal was a full line of motor-cars, ranging from competition in the Cadillac class (with the Packard) down to competition with Chevrolet, Ford and Plymouth (with the Studebaker Champion). After 1956, when Studebaker ran out of credit and underwent a complete management reorganisation, the expensive Packard series was dropped and an inexpensive Studebaker named the " Scotsman " was added to the line. A limited production of around 10,000 was all sold long before the model year ended.

Profiting by that experience—the only profit it could claim as it still is losing great sums of money ($13 million in the first half of 1958)—Studebaker now has dropped its medium-priced line of cars and even the vehicle supposedly competing with Chevrolet, Ford and Plymouth. It now will have only two series of automobiles: the Lark and the sports-type Studebaker Hawk. The Lark will be offered as a two-door sedan, four-door sedan, a two-door pillarless " hardtop " sedan, and as a station wagon. It will be available with a 90 hp six-cylinder engine, or with a V-8 of 180 bhp. It is claimed to do 31 miles to the gallon.

THIS would radically alter the character of United States automobile production. There will be smaller cars, selling for around $2,000—the labour content alone assures that the price cannot be materially reduced as the size is reduced. This is several hundred dollars greater than the price of small economy cars from abroad—but Detroit would quickly respond that the buyer will be getting the equivalent for his extra money in a roomier, higher performance vehicle. Above these smaller cars in price will be the Chevrolets, Fords and Plymouths, and cars of the Buick size and characteristics selling in a bracket of from $2,000 to $3,500 or more. And above them will still be the Cadillacs, Lincolns and Imperials.

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No one seriously believes that the advent of US-built smaller cars will wipe out the bigger car trade. Mr Romney, most optimistic of all about the future of smaller cars, has suggested that sometime in the 1960s production will be split about 50-50 between large and smaller cars. He also has a theory about what the entrance of the " Big Three " into the smaller car market will mean to his company ; and this theory may be extended to cover the effect that these smaller cars may have on the future market for imported vehicles. Mr Romney feels that General Motors, Ford and Chrysler will put such heavy advertising and promotion behind the smaller car to back their investment that they will interest a greater public in such cars, and his company cannot help but benefit.

Somewhat similar views are held by some of the principal British traders in the American car market. Firstly, with their experience in manufacturing small, economical motor cars, they do not fear Detroit competition in a market in which they have demonstrated a high degree of capability. Secondly, they agree that the bulk of US buyers of imported motor-cars are not interested in a Detroit-style vehicle ; they prefer foreign mechanical arrangements, foreign styling, foreign quality ; and they want to be able to say they own an imported, rather than a domestic car. Thirdly, they think Detroit's new packages will not be small enough to cut their own market which they reckon, regardless of the size of the US for passenger cars, at around 300,000. On this year's results, they may be conservative.

Tough Going for Commercial Vehicles

IT is not surprising that this year the commercial vehicle makers have had harder going than the car makers. Commercial vehicles are capital equipment, and the level of orders for their products is more closely related to changes in the economic outlook in general and by the level of industrial investment in particular than demand for passenger cars. In view of the continued slackening in activity in the United Kingdom and in certain export markets, it is hardly surprising that the commercial vehicle industry's sales, though higher than in 1956 and 1957, are not yet back to the records of 1955.

On the domestic market, sales have indeed remained below 1956 levels, except in the case of light trucks and vans. This seems mainly due to the decline in the rate of industrial investment and to the policy of credit restriction. The decline in industrial activity has adversely affected the demand for all forms of freight transport (rail as well as road). This has led to an increase in the volume of unused capacity, which has inevitably meant a certain amount of even keener competition and rather more rate-cutting to secure traffic.

The demand for new vehicles from " A " licence public hauliers has also been affected by two other factors: political uncertainty, and the possibility of distinctly keener competition from the railways. Both factors remain relevant. Political uncertainties may continue to damp the demand for vehicles from " A " licence hauliers until the next election—and could also affect demand from the " C " licence lorry operators, were the Labour party to come out with proposals restricting the granting or use of " C " licences. Railway competition is certain to become very much more keen, as a result of the implementation of the BTC modernisation programme, and especially as a result of the gradual revision of the railway's charging methods. Increased application of costing methods, together with the railways' considerably greater freedom of charging, could make the railways a somewhat more formidable competitor than in the past.

HOWEVER, other factors are now beginning to affect demand in the reverse direction. The relaxation in credit restrictions that has already taken place should certainly help to boost demand, especially in view of the fact that commercial vehicle operators' purchases have been kept at a minimum over the past two years and more: fleet replacement can be postponed, but not indefinitely.

Some of the British commercial vehicle industry's leading rivals have been faced with somewhat similar problems in their own domestic markets ; surplus capacity and short-time working have been by no means purely British phenomena. This has resulted in ever-keener competition in " third markets." Prices have had to be held stable, or even reduced in markets where in many cases margins were already relatively low, and this against the background of a smaller home market, and of rising costs.

British manufacturers have only been able to remain competitive in virtue of extensive rationalisation and interchangeability of parts, and also to some extent because of the diversified nature of their activities; some manufacturers have probably been able to offset decreased turnover in the commercial vehicle field by increased sales of engines and other components for railway, marine and industrial applications. The joint Leyland-AEC subsidiary, British United Traction, to name one example, has for instance secured substantial orders in connection with the diesel railcar programme of British Railways.

Increased interchangeability of parts has undoubtedly helped the manufacturers of light commercial vehicles to prevent costs from rising considerably more steeply than they would otherwise have done. This is especially true of some of the smaller commercial vehicles produced by the "Big Five" car manufacturers, which incorporate parts that are also used in the production of passenger cars. This use of common parts has also been carried relatively far in the design of heavier commercial vehicles, but progress in this direction is more difficult: heavy commercial vehicles are still largely "tailor-made," to suit the requirements of each individual user, and the manufacturer must be prepared to make many variations of any one basic design in a year. Mass production methods cannot be extensively applied in the construction of these vehicles; for this reason, it seems likely that the specialist manufacturers will be able to maintain their position in this market. That is not to say that all of the smaller makers—and some of them are very small indeed—will be able to keep their costs down enough to remain competitive. Furthermore, there is likely to be a considerable growth in the demand for more standardised relatively mass-produced, heavy vehicles. This demand will probably come, not so much from the owners of existing heavy commercial vehicles but rather from operators at present using smaller units, who decide to change to heavier vehicles. Here, the "Big Five" may be able to increase their share of the commercial market. Such a change has been made the more likely as a result of the raising of the speed limit on heavy lorries from 20 mph to 30 mph in 1957. But this new rule about the operation of lorries is still honoured more in the breach than the observance.

The Driver as Hero

IN the early days of motoring, the racing driver was usually an amateur, and possessed none of the unique allure of the sportsman-cum-entertainer of the racing driver today. The speed, acceleration and performance of the Grand Prix (or road) circuit racing car always demanded exceptional skill from those who drove it, on behalf of the manufacturers who found that it brought them prestige and useful research results. But drivers rarely went into it for direct financial gain (with the possible exception of Ettore Bugatti, who sold replicas of the cars he drove).

By the thirties, however, the professional racing driver had largely emerged: this is most clearly seen in the development of racing as a means of political propaganda by Hitler and Mussolini. Soon tremendous public interest was generated, far beyond the modest "gates" of earlier years; records became commercially important to manufacturers of cars and accessories; and the organisers of events could count on large profits. This led to their offering extravagant sums of starting money to manufacturers and drivers; and they were eagerly joined by the press. Since the war, this competition in performance has grown at an accelerated rate.

This competitive pressure means that year by year, almost race by race, the task of the professional racing driver becomes more exacting. Drivers of the calibre of Fangio, the new world champion Mike Hawthorn, Stirling Moss, Tony Brooks, the late Peter Collins, Jean Behra, the late Luigi Musso and a few others have had to be able to handle a car in a manner far removed from that of the fastest road motorists. The driver of a Grand Prix car has to accept as natural, speeds much greater than those attained by good sports car on the Queen's highway; he must have lightning reactions, enabling him to correct sudden skids and to overtake competitors between corners. But the technique of the leading exponents of what may be called the art of modern motor racing goes considerably beyond these requirements.

In his subconscious summing up of a racing car's handling characteristics, in his ability to exploit to the full the differences in over- and under-steering traits in cornering, and, above all, in his uncanny knack of being able to take a bend above the limit of tyre adhesion and then, by co-ordinated use of steering, engine power and track geography, get out of his predicament unscathed, the present-day driver of a Grand Prix car thrills his public and earns his living. If this sounds exaggerated, let it be remembered that the quickest way round a fast corner is usually in a four-wheel-drift, in which all four wheels lose adhesion and the car slides sideways round a chosen path with its nose appearing ready to run over the inner verge. To put a car into this drift requires not only an approach to the corner at a speed beyond the conception of the ordinary fast driver, but very accurate co-ordination of engine power and steering to prevent the drift from becoming a dangerous skid. The technique will vary from corner to corner, will be seriously affected by a sudden shower of rain and will be dependent on the particular car in use and how much fuel remains in its tank. Add to the foregoing requirements the considerations that the racing driver has to possess the stamina to withstand several exacting hours at a peak of alertness in a hot, noisy cockpit, that he is not at his best

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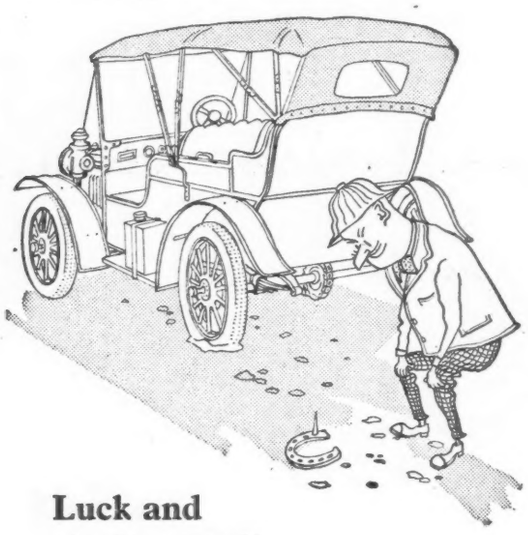

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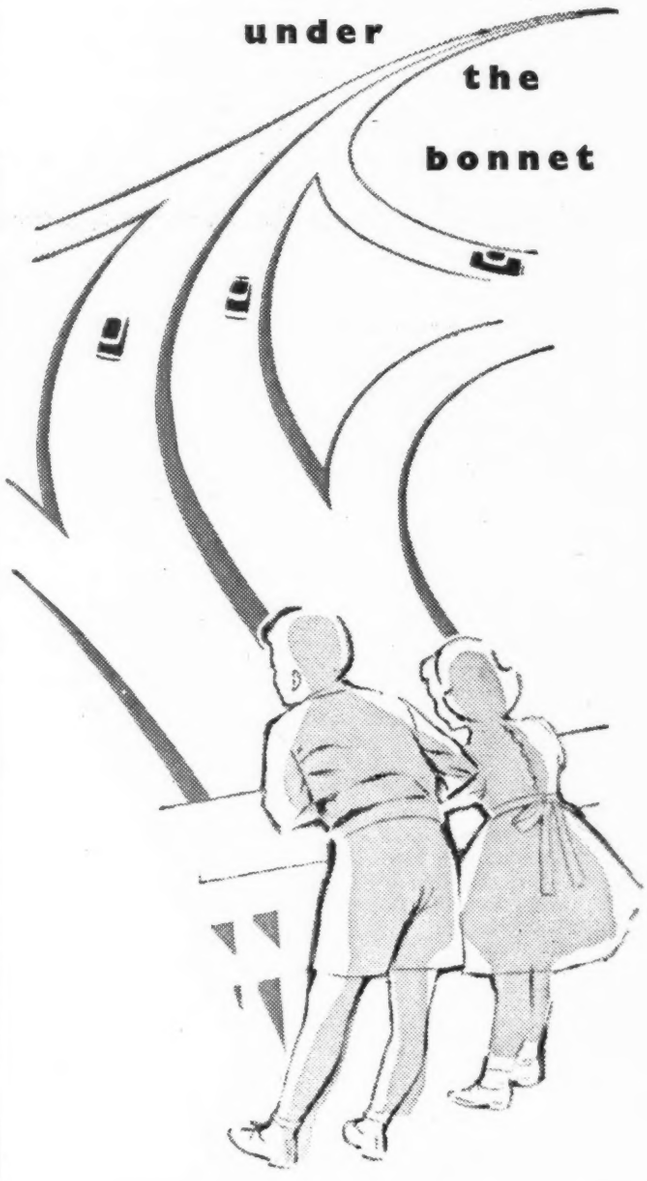

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after the age of 30, that his life may terminate abruptly at any stage of a race and that his working season from January to December involves high-speed air and road travel to all corners of the globe, and it must appear reasonable for him to command a large financial return.

What do drivers of the standing of Hawthorn and Moss earn? They are said indeed to receive more than the Prime Minister: to come in first in the annual French Grand Prix is valued at £10,000. Apart from appearance money, a share in the bonus and prize money and a retaining fee, the racing driver is obviously as well placed as the screen or television star to exploit subsidiary sources of income.

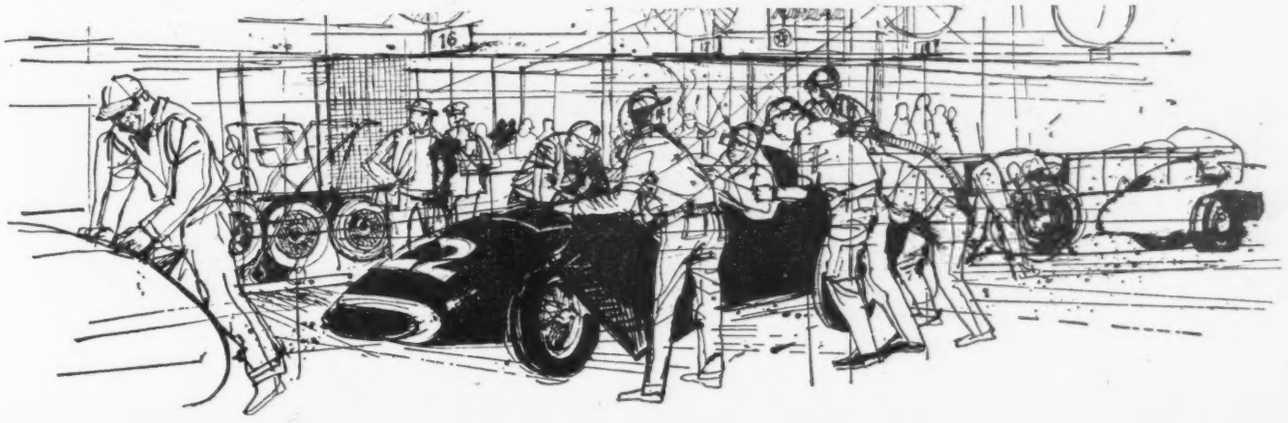
BEFORE the war most competitors were amateurs who paid dearly in entry fees and the appreciable cost of buying and maintaining racing cars—and raced for very modest prize money. One of the first British drivers to see the advantages of turning professional was the late Sir Henry Segrave, who then drove exclusively for the Sunbeam team. He was at the wheel of the first British car, a 2-litre Sunbeam, to win the French Grand Prix, at Tours in 1923, and was the first man to exceed 200 mph on land, in the fearsome twin-engined chain-drive Sunbeam that can now be inspected in the Montagu Motor Museum. A decade later the late Richard Seaman became a professional and was the first Englishman to drive in the Hitler-inspired Mercedes-Benz team, in whose service he was killed while driving in the Belgian Grand Prix at Spa in 1939.

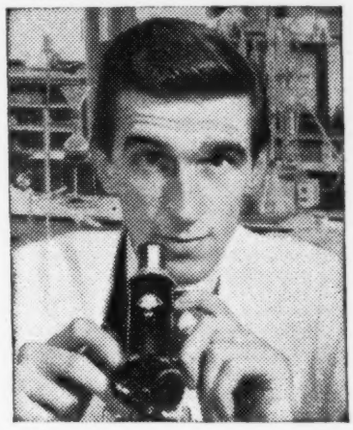
During the inter-war years record breaking was a rather more profitable line than racing: the late J. G. Parry Thomas, idol of the Brooklands public, earned a comfortable living by this means. As bonuses were paid by the petrol companies for each record broken, it is not surprising that instead of driving these record-breaking cars to the limit, many drivers preferred to raise a record by a few mph, and earn further bonus money some days later when they had another chance to better their own or a rival's speeds. There is a connection between the advertising value of record breaking and racing to the petroleum companies in the nineteen-twenties and their support of motor racing today. The recent ruling that races must be run on pump petrol (in fact on a grade of aviation fuel constant the world over) and not on specially brewed "dopes," shows that the petrol firms still place faith in the publicity value of motor racing but wish to obtain the greatest benefit from their investments in it.

Modern racing drivers, so glamorous a group of figures to their "fans," come from many countries: they differ widely in temperament, stature and disposition. This may be verified by observing these petrol-gladiators in the paddock before a race. Hawthorn will be dispensing a dry brand of humour, his great height topped by the famous cap, Moss will be seen earnestly discussing technicalities with his friends or his American wife, the Anglo-American Harry Schell will be grinning and gesticulating; Fangio looks the least like a racing driver off duty and remains completely calm—his remarkable ability to control his nerves was probably the key to his successive world championships.

The drivers' world championship, which Hawthorn and Moss contested so breath-takingly until last weekend, is the highest pinnacle of the professional driver. Yet striving for points therein may not always be in the best interests of team tactics and Hawthorn has been heard to refer to the championship's incentive as a nuisance in this respect.

It is logical to compare the racing driver with the bullfighter and the test pilot. The bullfighter is rumoured to earn far more fabulous sums than his counterpart in the world of mechanical entertainment: the test pilot gets hardly a fair return, in comparison, for valuable test work that may be of incalculable benefit to his country. Technique in all three has improved down the years. In the case of the racing driver this was exemplified last summer. Two prewar Mercedes-Benz Grand Prix cars were brought to Oulton Park at the instigation of the Vintage Sports Car Club and demonstrated by Tony Brooks and the late Peter Collins. In their day these were regarded as extremely difficult and even dangerous cars to drive. Yet very soon both these young drivers were extending these light and ultra-powerful racing cars with confidence. Although obviously very interested in their performance and handling characteristics, both expressed the view that they were not especially difficult to master. Collins, indeed, commented that while the prewar racing driver probably needed to be physically stronger than his modern counterpart there were no grounds for believing that he had to be more skilful. Yet when these now historic racing Mercedes were in their prime, building up German propaganda, their sponsors, against their racial principles, were obliged to bring in drivers from outside Germany (Seaman from Britain, Nuvolari and Fagioli from Italy) to drive the monsters, because only a handful of professionals then existed who were capable of taming them into race-winning machines. *Verb. sap.*





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